

1 **Supplementary material for ‘Hybridisation within *Brassica* and allied genera:**
2 **evaluation of potential for transgene escape’**

3
4 **Online Appendix 1: F₁ (experimental) sources**

5 Papers documenting experimental hybridisation, including cross direction and
6 success/failure used in making Figures 1–3. ‘Success’ means that any trial in the article
7 was successful, while ‘Fail’ means that all trials were unsuccessful. Articles that
8 successfully produced hybrids, but reported one or more trials where hybrids were not
9 produced, are indicated with an asterisk (*). In lists ‘As male’ or ‘As female’ refer to the
10 role of the crop species in the cross. Note that crosses where both parents are crops
11 species (*Brassica carinata*, *B. juncea*, *B. napus*, *B. nigra*, *B. oleracea*, *B. rapa*, *Raphanus*
12 *sativus* and *Sinapis alba*) are listed twice.

13
14 *Brassica carinata*

15
16 With *Brassica juncea*

- 17 • As male (success): U (1935); Rahman (1976, 1978); Anand et al. (1985); Katiyar
18 & Gupta (1987); Subudhi & Raut (1994b); Katiyar & Chamola (1995).
- 19 • As female (success): Rahman (1976); Getinet et al. (1994*, 1997).
- 20 • As female (failure): U (1935).

21
22 With *Brassica maurorum*

- 23 • As male (failure): Chrungu et al. (1999).

24
25 With *Brassica napus*

- 26 • As male (success): U (1935); Roy (1980); Wahiduzzaman (1987); Fernandez-
27 Escobar et al. (1988); Chen & Heneen (1992); Rashid et al. (1994).
- 28 • As female (success): Roy (1980); Wahiduzzaman (1987); Fernandez-Escobar et
29 al. (1988); Getinet et al. (1997).
- 30 • As female (failure): U (1935).

31
32 With *Brassica nigra*

- 33 • As female (success): U (1935); Mizushima (1950).

34
35 With *Brassica oleracea*

- 36 • As male (success): Morinaga (1933); Barcikowska et al. (1983).
- 37 • As female (success): U (1935*); Mizushima (1950); Rahman (2001).
- 38 • As male (failure): U (1935); Rahman (2001).
- 39 • As female (failure): Morinaga (1933); Tonguç & Griffiths (2004).

40
41 With *Brassica rapa*

- 42 • As male (success): Howard (1942); Struss et al. (1991); Meng et al. (1998);
43 Rahman (2001).
- 44 • As female (success): Mizushima (1950); Struss et al. (1991); Choudhary et al.
45 (2000a); Rahman (2001).
- 46 • As male (failure): Choudhary et al. (2000a).

- 47 • As female (failure): Meng et al. (1998).
48
49 With *Brassica tournefortii*
50 • As female (success): Joshi & Choudhary (1999*).
51 • As male (failure): Joshi & Choudhary (1999).
52
53 With *Enarthrocarpus lyratus*
54 • As male (failure): Gundimeda et al. (1992).
55 • As female (failure): Gundimeda et al. (1992).
56
57 With *Erucastrum abyssinicum*
58 • As male (failure): Rao et al. (1996).
59
60 With *Orychophragmus violaceus*
61 • As female (success): Li et al. (1998).
62 • As male (failure): Li et al. (1998).
63
64 With *Raphanus sativus*
65 • As female (success): Richharia (1937).
66 • As male (failure): Gupta (1997).
67
68 With *Sinapis alba*
69 • As male (failure): Sridevi & Sarla (1996).
70 • As female (failure): Sridevi & Sarla (1996).
71
72 With *Sinapis arvensis*
73 • As female (success): Mizushima (1950).
74
75 *Brassica juncea*
76
77 With *Brassica carinata*
78 • As male (success): Rahman (1976); Getinet et al. (1994*, 1997).
79 • As female (success): U (1935); Rahman (1976, 1978); Anand et al. (1985);
80 Katiyar & Gupta (1987); Subudhi & Raut (1994b); Katiyar & Chamola (1995).
81 • As male (failure): U (1935).
82
83 With *Brassica fruticulosa*
84 • As male (failure): Salisbury (1991).
85 • As female (failure): Salisbury (1991).
86
87 With *Brassica gravinae*
88 • As female (success): Nanda Kumar et al. (1988b).
89 • As male (failure): Nanda Kumar et al. (1988b).
90
91 With *Brassica maurorum*
92 • As female (success): Bijral et al. (1995).

- 93 • As male (failure): Chrungu et al. (1999).
94
95 With *Brassica napus*
96 • As male (success): Morinaga (1929b); Sasaoka (1930); Heyn (1977); Roy (1980);
97 Fan et al. (1986); Wahiduzzaman (1987^{*}); Prakash & Chopra (1990a); Rao &
98 Raut (1994); Rashid et al. (1994); Choudary & Joshi (1999^{*}).
99 • As female (success): Morinaga (1929b); Sasaoka (1930); Rahman (1978); Roy
100 (1978, 1980); Anand et al. (1985); Dhillon et al. (1985); Wahiduzzaman (1987);
101 Prakash & Chopra (1988); Sharma & Singh (1992); Rao & Raut (1994); Subudhi
102 & Raut (1994a); Frello et al. (1995); Choudary & Joshi (1999^{*}).
103 • As male (failure): Dhillon et al. (1985).
104
105 With *Brassica nigra*
106 • As female (success): Morinaga (1931); Ramanujam & Srinivasachar (1943);
107 Mizushima (1950); Olsson (1960a); Anand et al. (1985).
108 • As male (failure): Ramanujam & Srinivasachar (1943); Olsson (1960a); Ghosh
109 Dastidar & Varma (1999).
110 • As female (failure): Ghosh Dastidar & Varma (1999).
111
112 With *Brassica oleracea*
113 • As male (success): Struss et al. (1991).
114 • As male (failure): Kakizaki (1925); Ghosh Dastidar & Varma (1999).
115 • As female (failure): Kakizaki (1925); Ghosh Dastidar & Varma (1999).
116
117 With *Brassica oxyrrhina*
118 • As female (success): Bijral & Sharma (1999b).
119 • As male (failure): Salisbury (1991).
120 • As female (failure): Salisbury (1991).
121
122 With *Brassica rapa*
123 • As male (success): Morinaga (1929b); Ramanujam & Srinivasachar (1943);
124 Olsson (1960a); Roy (1980); Choudary & Joshi (1999^{*}).
125 • As female (success): Morinaga (1929b); Sikka (1940); Ramanujam &
126 Srinivasachar (1943); Mizushima (1950); Olsson (1960a); Roy (1980); Anand et
127 al. (1985); Love et al. (1990); Katiyar & Chamola (1998); Choudary & Joshi
128 (1999^{*}); Choudhary et al. (2002^{*}).
129 • As male (failure): Kakizaki (1925); Ghosh Dastidar & Varma (1999).
130 • As female (failure): Kakizaki (1925); Takeshita et al. (1980); Ghosh Dastidar &
131 Varma (1999).
132
133 With *Brassica tournefortii*
134 • As male (failure): Salisbury (1991); Ghosh Dastidar & Varma (1999).
135 • As female (failure): Salisbury (1991); Goyal et al. (1997); Ghosh Dastidar &
136 Varma (1999).

- 137
138 With *Camelina sativa*
139 • As male (failure): Salisbury (1991).
140 • As female (failure): Salisbury (1991).
141
142 With *Capsella bursa-pastoris*
143 • As male (failure): Salisbury (1991).
144 • As female (failure): Salisbury (1991).
145
146 With *Conringia orientalis*
147 • As male (failure): Salisbury (1991).
148 • As female (failure): Salisbury (1991).
149
150 With *Crambe abyssinica*
151 • As female (failure): Wang & Luo (1998).
152
153 With *Diplotaxis eruroides*
154 • As female (success): Inomata (1998).
155 • As male (failure): Vyas et al. (1995).
156
157 With *Diplotaxis muralis*
158 • As male (failure): Salisbury (1991).
159 • As female (failure): Salisbury (1991).
160
161 With *Diplotaxis siifolia*
162 • As male (failure): Batra et al. (1990).
163 • As female (failure): Batra et al. (1990).
164
165 With *Diplotaxis tenuifolia*
166 • As male (success): Salisbury (1991).
167 • As female (failure): Salisbury (1991).
168
169 With *Diplotaxis tenuisiliqua*
170 • As male (failure): Salisbury (1991).
171 • As female (failure): Salisbury (1991).
172
173 With *Enarthrocarpus lyratus*
174 • As male (failure): Gundimeda et al. (1992).
175 • As female (failure): Gundimeda et al. (1992).
176
177 With *Eruca vesicaria*
178 • As female (success): Bijral & Sharma (1999a); Goswami & Devi (2002).
179 • As male (failure): Ghosh Dastidar & Varma (1999).
180
181 With *Erucastrum abyssinicum*
182 • As male (failure): Rao et al. (1996).

- 183
184 With *Erucastrum gallicum*
185 • As male (failure): Lefol et al. (1997).
186 • As female (failure): Lefol et al. (1997).
187
188 With *Erucastrum virgatum*
189 • As female (success): Inomata (2001).
190
191 With *Hirschfeldia incana*
192 • As male (failure): Salisbury (1991).
193 • As female (failure): Salisbury (1991).
194
195 With *Moricandia arvensis*
196 • As male (failure): Takahata et al. (1993).
197 • As female (failure): Takahata et al. (1993).
198
199 With *Myagrimum perfoliatum*
200 • As male (failure): Salisbury (1991).
201 • As female (failure): Salisbury (1991).
202
203 With *Orychophragmus violaceus*
204 • As female (success): Li et al. (1998).
205 • As male (failure): Li et al. (1998).
206
207 With *Raphanus raphanistrum*
208 • As female (success): Kamala (1983).
209 • As male (failure): Salisbury (1991); Lefol et al. (1997).
210 • As female (failure): Salisbury (1991); Lefol et al. (1997).
211
212 With *Raphanus sativus*
213 • As male (failure): Kakizaki (1925); Gupta (1997).
214 • As female (failure): Kakizaki (1925).
215
216 With *Sinapis alba*
217 • As female (success): Bijral et al. (1991).
218 • As male (failure): Sridevi & Sarla (1996).
219 • As female (failure): Sharma & Singh (1992); Sridevi & Sarla (1996).
220
221 With *Sinapis arvensis*
222 • As female (success): Mizushima (1950).
223 • As male (failure): Salisbury (1991).
224 • As female (failure): Salisbury (1991).
225
226 With *Sisymbrium indicum*
227 • As male (failure): Ghosh Dastidar & Varma (1999).
228 • As female (failure): Ghosh Dastidar & Varma (1999).

- 229
- 230 With *Sisymbrium irio*
- 231 • As male (failure): Salisbury (1991).
- 232 • As female (failure): Salisbury (1991).
- 233 Brassica napus
- 234
- 235 With *Brassica carinata*
- 236 • As male (success): Roy (1980); Wahiduzzaman (1987); Fernandez-Escobar et al.
- 237 (1988); Getinet et al. (1997).
- 238 • As female (success): U (1935); Roy (1980); Wahiduzzaman (1987); Fernandez-
- 239 Escobar et al. (1988); Chen & Heneen (1992); Rashid et al. (1994).
- 240 • As male (failure): U (1935).
- 241
- 242 With *Brassica fruticulosa*
- 243 • As female (success): Heyn (1977).
- 244 • As male (failure): Salisbury (1991).
- 245 • As female (failure): Salisbury (1991).
- 246
- 247 With *Brassica gravinae*
- 248 • As male (failure): Nanda Kumar et al. (1988b).
- 249 • As female (failure): Nanda Kumar et al. (1988b).
- 250
- 251 With *Brassica juncea*
- 252 • As male (success): Morinaga (1929b); Sasaoka (1930); Rahman (1978); Roy
- 253 (1978, 1980); Anand et al. (1985); Dhillon et al. (1985); Wahiduzzaman (1987);
- 254 Prakash & Chopra (1988); Sharma & Singh (1992); Rao & Raut (1994); Subudhi
- 255 & Raut (1994a); Frello et al. (1995); Choudary & Joshi (1999*).
- 256 • As female (success): Morinaga (1929b); Sasaoka (1930); Heyn (1977); Roy
- 257 (1980); Fan et al. (1986); Wahiduzzaman (1987*); Prakash & Chopra (1990a);
- 258 Rao & Raut (1994); Rashid et al. (1994); Choudary & Joshi (1999*).
- 259 • As female (failure): Dhillon et al. (1985).
- 260
- 261 With *Brassica maurorum*
- 262 • As male (success): Chrungu et al. (1999).
- 263 • As female (success): Bijral et al. (1995).
- 264
- 265 With *Brassica nigra*
- 266 • As male (success): Struss et al. (1991); Zhu & Struss (1991).
- 267 • As female (success): Mizushima (1950); Heyn (1977); Struss et al. (1991); Zhu &
- 268 Struss (1991).
- 269 • As male (failure): Diederichsen & Sacristán (1988); Kerlan et al. (1992).
- 270 • As female (failure): Diederichsen & Sacristán (1988); Kerlan et al. (1992).
- 271
- 272 With *Brassica oleracea*
- 273 • As male (success): Chiang et al. (1977*); Wahiduzzaman (1987).

- 274 • As female (success): U (1935^{*}); Mizushima (1950); Honma & Summers (1976);
 275 Chiang et al. (1977^{*}); Wahiduzzaman (1987).
 276 • As male (failure): U (1935); Calder (1937); Takeshita et al. (1980); Kerlan et al.
 277 (1992).
 278 • As female (failure): Calder (1937); Ayotte et al. (1987); Kerlan et al. (1992).
 279

280 With *Brassica oxyrrhina*

- 281 • As male (failure): Salisbury (1991).
 282 • As female (failure): Salisbury (1991).
 283

284 With *Brassica rapa*

- 285 • As male (success): Morinaga (1929a); Sasaoka (1930); U (1935); Calder (1937);
 286 Palmer (1962); Lammerink (1970); Kamala (1976); Beversdorf et al. (1980);
 287 Anand & Downey (1981); Gowers (1982); Mero & Honma (1984); Pellan-
 288 Delourme & Renard (1987); Wahiduzzaman (1987); Brown & Brown (1996);
 289 Hauser et al. (1997, 1998a); Metz et al. (1997); Choudary & Joshi (1999^{*});
 290 Halfhill et al. (2001, 2002^{*}); Hansen et al. (2001); Jenkins et al. (2001, 2005); Lu
 291 et al. (2001a); Zhu et al. (2004).
 292 • As female (success): Morinaga (1929a); Sasaoka (1930); U (1935); Calder
 293 (1937); Mizushima (1950); Palmer (1962); Nwankiti (1970); McNaughton
 294 (1973b); Johnston (1974); Kamala (1976); Heyn (1977); Mackay (1977); Rahman
 295 (1978); Mlyniec et al. (1979); Beversdorf et al. (1980); Anand & Downey (1981);
 296 Mero & Honma (1984); Wahiduzzaman (1987); Chen et al. (1990); Goring et al.
 297 (1992); Cheng et al. (1994); J. Brown et al. (1996); Mikkelsen et al. (1996b);
 298 Hauser et al. (1997, 1998a); Hu et al. (1997); Wu & Shi (1997); Jørgensen et al.
 299 (1998); Choudary & Joshi (1999); Verma et al. (2000); Lewis et al. (2001); Lu et
 300 al. (2001a); Liu et al. (2002).
 301

302 With *Brassica tournefortii*

- 303 • As female (success): Heyn (1977).
 304 • As male (failure): Salisbury (1991).
 305 • As female (failure): Salisbury (1991).
 306

307 With *Camelina sativa*

- 308 • As male (failure): Salisbury (1991).
 309 • As female (failure): Salisbury (1991).
 310

311 With *Capsella bursa-pastoris*

- 312 • As male (failure): Salisbury (1991).
 313 • As female (failure): Salisbury (1991).
 314

315 With *Conringia orientalis*

- 316 • As male (failure): Salisbury (1991).
 317 • As female (failure): Salisbury (1991).

- 318
319 With *Crambe abyssinica*
320 • As female (failure): Wang & Luo (1998).
321
322 With *Diplotaxis assurgens*
323 • As male (failure): Ringdahl et al. (1987).
324
325 With *Diplotaxis catholica*
326 • As female (success): Bijral & Sharma (1998).
327
328 With *Diplotaxis erucooides*
329 • As male (success): Ringdahl et al. (1987).
330 • As male (failure): Vyas et al. (1995).
331
332 With *Diplotaxis harra*
333 • As male (failure): Ringdahl et al. (1987).
334
335 With *Diplotaxis ibicensis*
336 • As male (failure): Ringdahl et al. (1987).
337
338 With *Diplotaxis muralis*
339 • As male (success): Fan et al. (1985); Ringdahl et al. (1987); Salisbury (1991).
340 • As female (success): Bijral & Sharma (1996b).
341 • As female (failure): Salisbury (1991).
342
343 With *Diplotaxis pitardiana*
344 • As male (failure): Ringdahl et al. (1987).
345
346 With *Diplotaxis siettiana*
347 • As male (failure): Ringdahl et al. (1987).
348
349 With *Diplotaxis siifolia*
350 • As male (failure): Ringdahl et al. (1987); Batra et al. (1990).
351 • As female (failure): Batra et al. (1990).
352
353 With *Diplotaxis tenuifolia*
354 • As female (success): Heyn (1977).
355 • As male (failure): Ringdahl et al. (1987); Salisbury (1991).
356 • As female (failure): Salisbury (1991).
357
358 With *Diplotaxis tenuisiliqua*
359 • As male (failure): Ringdahl et al. (1987); Salisbury (1991).
360 • As female (failure): Salisbury (1991).
361
362 With *Diplotaxis viminea*
363 • As male (failure): Ringdahl et al. (1987).

- 364
 365 With *Diplotaxis virgata*
 366 • As male (failure): Ringdahl et al. (1987).
 367
 368 With *Enarthrocarpus lyratus*
 369 • As male (failure): Gundimeda et al. (1992).
 370 • As female (failure): Gundimeda et al. (1992).
 371
 372 With *Eruca vesicaria*
 373 • As female (success): Heyn (1977); Bijral & Sharma (1996a).
 374
 375 With *Erucastrum abyssinicum*
 376 • As male (failure): Rao et al. (1996).
 377
 378 With *Erucastrum gallicum*
 379 • As female (success): Lefol et al. (1997).
 380 • As male (failure): Lefol et al. (1997).
 381
 382 With *Hirschfeldia incana*
 383 • As male (success): Lefol et al. (1996b).
 384 • As female (success): Lefol et al. (1996b).
 385 • As male (failure): Salisbury (1991); Kerlan et al. (1992).
 386 • As female (failure): Salisbury (1991); Kerlan et al. (1992).
 387
 388 With *Moricandia arvensis*
 389 • As male (failure): Takahata et al. (1993).
 390 • As female (failure): Takahata et al. (1993).
 391
 392 With *Myagrurn perfoliatum*
 393 • As male (failure): Salisbury (1991).
 394 • As female (failure): Salisbury (1991).
 395
 396 With *Orychophragmus violaceus*
 397 • As female (success): Cheng & Séguin-Swartz(2000).
 398
 399 With *Raphanus raphanistrum*
 400 • As female (success): Kamala (1983); Lefol et al. (1997); Chèvre et al. (1998a).
 401 • As male (failure): Salisbury (1991); Kerlan et al. (1992); Lefol et al. (1997);
 402 Warwick et al. (2003).
 403 • As female (failure): Salisbury (1991); Kerlan et al. (1992).
 404
 405 With *Raphanus sativus*
 406 • As male (success): Paulmann & Röbbelen (1988).
 407 • As female (success): Huang et al. (2002).
 408 • As male (failure): Takeshita et al. (1980); Lelivelt et al. (1993b); Metz et al.
 409 (1995); Gupta (1997).

- 410 • As female (failure): Takeshita et al. (1980); Lelivelt et al. (1993b).
411
412 With *Rapistrum rugosum*
413 • As female (success): Heyn (1977).
414
415 With *Rorippa islandica*
416 • As female (success): Bijral & Sharma (1995).
417
418 With *Sinapis alba*
419 • As female (success): Heyn (1977).
420 • As male (failure): Lelivelt (1993); Lelivelt et al. (1993a); Sridevi & Sarla (1996).
421 • As female (failure): Lelivelt et al. (1993a); Sridevi & Sarla (1996).
422
423 With *Sinapis arvensis*
424 • As male (success): Moyes et al. (2002*^{*}).
425 • As female (success): Mizushima (1950); Inomata (1988); Moyes et al. (1999,
426 2002*^{*}).
427 • As male (failure): Salisbury (1991); Kerlan et al. (1992); Bing et al. (1995);
428 Moyes et al. (1999).
429 • As female (failure): Salisbury (1991); Kerlan et al. (1992); Bing et al. (1995).
430
431 With *Sinapis pubescens*
432 • As female (success): Inomata (1994).
433
434 With *Sisymbrium irio*
435 • As male (failure): Salisbury (1991).
436 • As female (failure): Salisbury (1991).
437
438 Brassica nigra
439
440 With *Brassica carinata*
441 • As male (success): U (1935); Mizushima (1950).
442
443 With *Brassica fruticulosa*
444 • As female (success): Salisbury (1991).
445 • As male (failure): Salisbury (1991).
446
447 With *Brassica juncea*
448 • As male (success): Morinaga (1931); Ramanujam & Srinivasachar (1943);
449 Mizushima (1950); Olsson (1960a); Anand et al. (1985).
450 • As male (failure): Ghosh Dastidar & Varma (1999).
451 • As female (failure): Ramanujam & Srinivasachar (1943); Olsson (1960a); Ghosh
452 Dastidar & Varma (1999).
453
454 With *Brassica maurorum*
455 • As male (success): Chrungu et al. (1999).

- 456
- 457 With *Brassica napus*
- 458 • As male (success): Mizushima (1950); Heyn (1977); Struss et al. (1991); Zhu &
- 459 Struss (1991).
- 460 • As female (success): Struss et al. (1991); Zhu & Struss (1991).
- 461 • As male (failure): Diederichsen & Sacristán (1988); Kerlan et al. (1992).
- 462 • As female (failure): Diederichsen & Sacristán (1988); Kerlan et al. (1992).
- 463
- 464 With *Brassica oleracea*
- 465 • As male (success): Prakash et al. (1984).
- 466 • As female (success): Frandsen (1947); Mizushima (1950); Pearson (1972); Sarla
- 467 et al. (1987); Sarla & Raut (1988, 1991).
- 468 • As male (failure): Kakizaki (1925); Diederichsen & Sacristán (1988).
- 469 • As female (failure): Kakizaki (1925); Diederichsen & Sacristán (1988).
- 470
- 471 With *Brassica oxyrrhina*
- 472 • As male (failure): Salisbury (1991).
- 473 • As female (failure): Salisbury (1991).
- 474
- 475 With *Brassica rapa*
- 476 • As male (success): Ramanujam & Srinivasachar (1943); Mizushima (1950);
- 477 Olsson (1960a); Prakash (1973a, 1973b); Bing et al. (1996a).
- 478 • As female (success): Bing et al. (1996a).
- 479 • As male (failure): Kakizaki (1925); Diederichsen & Sacristán (1988); Bhat &
- 480 Sarla (1996).
- 481 • As female (failure): Ramanujam & Srinivasachar (1943); Olsson (1960a); Bhat &
- 482 Sarla (1996).
- 483
- 484 With *Brassica tournefortii*
- 485 • As male (success): Narain & Prakash (1972).
- 486 • As male (failure): Salisbury (1991).
- 487 • As female (failure): Salisbury (1991).
- 488
- 489 With *Camelina sativa*
- 490 • As male (failure): Salisbury (1991).
- 491 • As female (failure): Salisbury (1991).
- 492
- 493 With *Capsella bursa-pastoris*
- 494 • As male (failure): Salisbury (1991).
- 495 • As female (failure): Salisbury (1991).
- 496
- 497 With *Conringia orientalis*
- 498 • As male (failure): Salisbury (1991).
- 499 • As female (failure): Salisbury (1991).

- 500
501 With *Diplotaxis muralis*
502 • As male (failure): Salisbury (1991).
503 • As female (failure): Salisbury (1991).
504
505 With *Diplotaxis tenuifolia*
506 • As male (success): Salisbury (1991).
507 • As female (failure): Salisbury (1991).
508
509 With *Diplotaxis tenuisiliqua*
510 • As male (failure): Salisbury (1991).
511 • As female (failure): Salisbury (1991).
512
513 With *Enarthrocarpus lyratus*
514 • As male (failure): Gundimeda et al. (1992).
515 • As female (failure): Gundimeda et al. (1992).
516
517 With *Erucastrum abyssinicum*
518 • As male (failure): Rao et al. (1996).
519
520 With *Erucastrum cardaminoides*
521 • As male (failure): Chandra et al. (2004a).
522
523 With *Hirschfeldia incana*
524 • As female (success): Salisbury (1991).
525 • As male (failure): Salisbury (1991).
526
527 With *Moricandia arvensis*
528 • As male (failure): Takahata & Takeda (1990).
529
530 With *Myagrurn perfoliatum*
531 • As male (failure): Salisbury (1991).
532 • As female (failure): Salisbury (1991).
533
534 With *Orychophragmus violaceus*
535 • As female (success): Li & Heneen (1999).
536
537 With *Raphanus raphanistrum*
538 • As male (failure): Salisbury (1991).
539 • As female (failure): Salisbury (1991).
540
541 With *Raphanus sativus*
542 • As male (failure): Kakizaki (1925).
543 • As female (failure): Kakizaki (1925).

- 544
- 545 With *Sinapis alba*
- 546 • As male (success): Choudhary & Joshi (2000).
- 547 • As male (failure): Sridevi & Sarla (1996).
- 548 • As female (failure): Sridevi & Sarla (1996); Choudhary & Joshi (2000).
- 549
- 550 With *Sinapis arvensis*
- 551 • As female (success): Mizushima (1950); Banga & Labana (1991); Salisbury
- 552 (1991).
- 553 • As male (failure): Salisbury (1991).
- 554
- 555 With *Sisymbrium irio*
- 556 • As male (failure): Salisbury (1991).
- 557 • As female (failure): Salisbury (1991).
- 558
- 559 Brassica oleracea
- 560
- 561 With *Brassica balearica*
- 562 • As male (failure): Snogerup & Persson (1983).
- 563 • As female (failure): Snogerup & Persson (1983).
- 564
- 565 With *Brassica bourgeauii*
- 566 • As male (success): von Bothmer et al. (1995).
- 567
- 568 With *Brassica carinata*
- 569 • As male (success): U (1935*); Mizushima (1950); Rahman (2001).
- 570 • As female (success): Morinaga (1933); Barcikowska et al. (1983).
- 571 • As male (failure): Morinaga (1933); Tonguç & Griffiths (2004).
- 572 • As female (failure): U (1935); Rahman (2001).
- 573
- 574 With *Brassica cretica*
- 575 • As male (success): von Bothmer et al. (1995).
- 576
- 577 With *Brassica incana*
- 578 • As male (success): von Bothmer et al. (1995).
- 579
- 580 With *Brassica insularis*
- 581 • As male (success): von Bothmer et al. (1995).
- 582 • As female (success): Mithen & Lewis (1988).
- 583
- 584 With *Brassica juncea*
- 585 • As female (success): Struss et al. (1991).
- 586 • As male (failure): Kakizaki (1925); Ghosh Dastidar & Varma (1999).
- 587 • As female (failure): Kakizaki (1925); Ghosh Dastidar & Varma (1999).

- 588
589 With *Brassica macrocarpa*
590 • As male (success): von Bothmer et al. (1995).
591
- 592 With *Brassica maurorum*
593 • As male (success): Chrungu et al. (1999*^{*}).
594
- 595 With *Brassica montana*
596 • As male (success): von Bothmer et al. (1995).
597
- 598 With *Brassica napus*
599 • As male (success): U (1935*^{*}); Mizushima (1950); Honma & Summers (1976);
600 Chiang et al. (1977*^{*}); Wahiduzzaman (1987).
601 • As female (success): Chiang et al. (1977*^{*}); Wahiduzzaman (1987).
602 • As male (failure): Calder (1937); Ayotte et al. (1987); Kerlan et al. (1992).
603 • As female (failure): U (1935); Calder (1937); Takeshita et al. (1980); Kerlan et al.
604 (1992).
605
- 606 With *Brassica nigra*
607 • As male (success): Frandsen (1947); Mizushima (1950); Pearson (1972); Sarla et
608 al. (1987); Sarla & Raut (1988, 1991).
609 • As female (success): Prakash et al. (1984).
610 • As male (failure): Kakizaki (1925); Diederichsen & Sacristán (1988).
611 • As female (failure): Kakizaki (1925); Diederichsen & Sacristán (1988).
612
- 613 With *Brassica rapa*
614 • As male (success): U (1935*^{*}); Frandsen (1947); Mizushima (1950); Olsson
615 (1960b*^{*}); Namai (1971*^{*}); Raut & Kaul (1982); Prakash & Raut (1983); Inomata
616 (1984*^{*}); Kalasa-Balicka (1985); Wojciechowski (1985a*^{*}); Akbar (1987, 1989);
617 Sarla & Raut (1987); Sarla (1988).
618 • As female (success): Olsson (1960b*^{*}); Ellerström (1978); Wojciechowski
619 (1985a*^{*}); Heath & Earle (1996).
620 • As male (failure): Kakizaki (1925); Calder (1937); Honma & Heeckt (1960);
621 Inomata (1977, 1978a, 1978b); Ellerström (1978); Takeshita et al. (1980);
622 Diederichsen & Sacristán (1994); Heath & Earle (1996).
623 • As female (failure): Kakizaki (1925); U (1935); Calder (1937); Honma & Heeckt
624 (1960); Namai (1971); Inomata (1977, 1978a); Takeshita et al. (1980); Akbar
625 (1987); Chen et al. (1988); Diederichsen & Sacristán (1994).
626
- 627 With *Brassica rupestris*
628 • As male (success): von Bothmer et al. (1995).
629
- 630 With *Brassica tournefortii*
631 • As male (success): Narain & Prakash (1972); Ljungberg et al. (1993).
632 • As female (failure): Ljungberg et al. (1993).

- 633
- 634 With *Brassica villosa*
- 635 • As male (success): von Bothmer et al. (1995).
- 636
- 637 With *Diplotaxis erucoidea*
- 638 • As male (failure): Vyas et al. (1995).
- 639
- 640 With *Enarthrocarpus lyratus*
- 641 • As male (failure): Gundimeda et al. (1992).
- 642 • As female (failure): Gundimeda et al. (1992).
- 643
- 644 With *Eruca vesicaria*
- 645 • As male (success): U et al. (1937).
- 646 • As female (success): Eenink (1974).
- 647
- 648 With *Erucastrum abyssinicum*
- 649 • As male (success): Sarmah & Sarla (1998).
- 650
- 651 With *Hirschfeldia incana*
- 652 • As female (success): Quiros et al. (1988).
- 653
- 654 With *Moricandia arvensis*
- 655 • As female (success): Apel et al. (1984).
- 656 • As male (failure): Takahata (1990).
- 657 • As female (failure): Takahata (1990).
- 658
- 659 With *Orychophragmus violaceus*
- 660 • As male (failure): Li & Heneen (1999).
- 661 • As female (failure): Li & Heneen (1999).
- 662
- 663 With *Raphanus sativus*
- 664 • As male (success): Karpechenko (1924); Richharia (1937); McNaughton (1973a);
- 665 Ellerström & Zagorcheva (1977); Ellerström (1978); McCollum (1979);
- 666 Sarashima & Matsuzawa (1979); Namai (1980).
- 667 • As female (success): Opena & Lo (1978).
- 668 • As male (failure): Kakizaki (1925).
- 669 • As female (failure): Karpechenko (1924); Kakizaki (1925); McNaughton (1973a);
- 670 Eenink (1974); Ellerström (1978); Namai (1980); Takeshita et al. (1980).
- 671
- 672 With *Sinapis alba*
- 673 • As male (success): U et al. (1937).
- 674 • As male (failure): Sridevi & Sarla (1996).
- 675 • As female (failure): Sridevi & Sarla (1996).
- 676
- 677 With *Sinapis arvensis*
- 678 • As female (success): Mizushima (1950).

- 679 Brassica rapa
680
681 With Brassica carinata
682 • As male (success): Mizushima (1950); Struss et al. (1991); Choudhary et al.
683 (2000a); Rahman (2001).
684 • As female (success): Howard (1942); Struss et al. (1991); Meng et al. (1998);
685 Rahman (2001).
686 • As male (failure): Meng et al. (1998).
687 • As female (failure): Choudhary et al. (2000a).
688
689 With Brassica fruticulosa
690 • As male (success): Nanda Kumar et al. (1988a, 1988b).
691 • As male (failure): Nanda Kumar & Shivanna (1986); Salisbury (1991); Chandra et
692 al. (2004b).
693 • As female (failure): Salisbury (1991).
694
695 With Brassica juncea
696 • As male (success): Morinaga (1929b); Sikka (1940); Ramanujam & Srinivasachar
697 (1943); Mizushima (1950); Olsson (1960a); Roy (1980); Anand et al. (1985);
698 Love et al. (1990); Katiyar & Chamola (1998); Choudary & Joshi (1999*);
699 Choudhary et al. (2002*).
700 • As female (success): Morinaga (1929b); Ramanujam & Srinivasachar (1943);
701 Olsson (1960a); Roy (1980); Choudary & Joshi (1999*).
702 • As male (failure): Kakizaki (1925); Takeshita et al. (1980); Ghosh Dastidar &
703 Varma (1999).
704 • As female (failure): Kakizaki (1925); Ghosh Dastidar & Varma (1999).
705
706 With Brassica maurorum
707 • As male (failure): Chrungu et al. (1999).
708
709 With Brassica napus
710 • As male (success): Morinaga (1929a); Sasaoka (1930); U (1935); Calder (1937);
711 Mizushima (1950); Palmer (1962); Nwankiti (1970); McNaughton (1973b);
712 Johnston (1974); Kamala (1976); Heyn (1977); Mackay (1977); Rahman (1978);
713 Mlyniec et al. (1979); Beversdorf et al. (1980); Anand & Downey (1981); Mero &
714 Honma (1984); Wahiduzzaman (1987); Chen et al. (1990); Goring et al. (1992);
715 Cheng et al. (1994); J. Brown et al. (1996); Mikkelsen et al. (1996b); Hauser et al.
716 (1997, 1998a); Hu et al. (1997); Wu & Shi (1997); Jørgensen et al. (1998);
717 Choudary & Joshi (1999); Verma et al. (2000); Lewis et al. (2001); Lu et al.
718 (2001a); Liu et al. (2002).
719 • As female (success): Morinaga (1929a); Sasaoka (1930); U (1935); Calder
720 (1937); Palmer (1962); Lammerink (1970); Kamala (1976); Beversdorf et al.
721 (1980); Anand & Downey (1981); Gowers (1982); Mero & Honma (1984);
722 Pellan-Delourme & Renard (1987); Wahiduzzaman (1987); Brown & Brown
723 (1996); Hauser et al. (1997, 1998a); Metz et al. (1997); Choudary & Joshi

- 724 (1999*); Halfhill et al. (2001, 2002*); Hansen et al. (2001); Jenkins et al. (2001,
725 2005); Lu et al. (2001a); Zhu et al. (2004).
726
727 With *Brassica nigra*
728 • As male (success): Bing et al. (1996a).
729 • As female (success): Ramanujam & Srinivasachar (1943); Mizushima (1950);
730 Olsson (1960a); Prakash (1973a, 1973b); Bing et al. (1996a).
731 • As male (failure): Ramanujam & Srinivasachar (1943); Olsson (1960a); Bhat &
732 Sarla (1996).
733 • As female (failure): Kakizaki (1925); Diederichsen & Sacristán (1988); Bhat &
734 Sarla (1996).
735
736 With *Brassica oleracea*
737 • As male (success): Olsson (1960b*); Ellerström (1978); Wojciechowski (1985a*);
738 Heath & Earle (1996).
739 • As female (success): U (1935*); Frandsen (1947); Mizushima (1950); Olsson
740 (1960b*); Namai (1971*); Raut & Kaul (1982); Prakash & Raut (1983); Inomata
741 (1984*); Kalasa-Balicka (1985); Wojciechowski (1985a*); Akbar (1987, 1989);
742 Sarla & Raut (1987); Sarla (1988).
743 • As male (failure): Kakizaki (1925); U (1935); Calder (1937); Honma & Heeckt
744 (1960); Namai (1971); Inomata (1977, 1978a); Takeshita et al. (1980); Akbar
745 (1987); Chen et al. (1988); Diederichsen & Sacristán (1994).
746 • As female (failure): Kakizaki (1925); Calder (1937); Honma & Heeckt (1960);
747 Inomata (1977, 1978a, 1978b); Ellerström (1978); Takeshita et al. (1980);
748 Diederichsen & Sacristán (1994); Heath & Earle (1996).
749
750 With *Brassica oxyrrhina*
751 • As male (failure): Salisbury (1991).
752 • As female (failure): Salisbury (1991).
753
754 With *Brassica spinescens*
755 • As female (success): Inomata (2000).
756
757 With *Brassica tournefortii*
758 • As male (success): Sikka (1940); Choudhary & Joshi (2001*).
759 • As female (success): Prakash & Narain (1971); Narain & Prakash (1972).
760 • As male (failure): Salisbury (1991).
761 • As female (failure): Salisbury (1991); Choudhary & Joshi (2001).
762
763 With *Camelina sativa*
764 • As male (failure): Salisbury (1991).
765 • As female (failure): Salisbury (1991).
766
767 With *Capsella bursa-pastoris*
768 • As male (failure): Salisbury (1991).
769 • As female (failure): Salisbury (1991).

- 770
- 771 With *Conringia orientalis*
- 772 • As male (failure): Salisbury (1991).
- 773 • As female (failure): Salisbury (1991).
- 774
- 775 With *Crambe abyssinica*
- 776 • As female (failure): Wang & Luo (1998).
- 777
- 778 With *Diplotaxis erucooides*
- 779 • As male (failure): Vyas et al. (1995).
- 780
- 781 With *Diplotaxis muralis*
- 782 • As male (success): Salisbury (1991).
- 783 • As female (failure): Salisbury (1991).
- 784
- 785 With *Diplotaxis siettiana*
- 786 • As male (failure): Nanda Kumar & Shivanna (1993).
- 787 • As female (failure): Nanda Kumar & Shivanna (1993).
- 788
- 789 With *Diplotaxis siifolia*
- 790 • As male (failure): Batra et al. (1990).
- 791 • As female (failure): Batra et al. (1990).
- 792
- 793 With *Diplotaxis tenuifolia*
- 794 • As male (success): Salisbury (1991).
- 795 • As female (failure): Salisbury (1991).
- 796
- 797 With *Diplotaxis tenuisiliqua*
- 798 • As male (failure): Salisbury (1991).
- 799 • As female (failure): Salisbury (1991).
- 800
- 801 With *Enarthrocarpus lyratus*
- 802 • As male (failure): Gundimeda et al. (1992).
- 803 • As female (failure): Gundimeda et al. (1992).
- 804
- 805 With *Eruca vesicaria*
- 806 • As female (success): Mizushima (1950).
- 807
- 808 With *Erucastrum abyssinicum*
- 809 • As male (failure): Rao et al. (1996).
- 810
- 811 With *Erucastrum canariense*
- 812 • As male (failure): Bhaskar et al. (2002).
- 813 • As female (failure): Bhaskar et al. (2002).

- 814
- 815 With *Erucastrum cardaminoides*
- 816 • As male (failure): Chandra et al. (2004a).
- 817
- 818 With *Erucastrum gallicum*
- 819 • As female (success): Lefol et al. (1997).
- 820 • As male (failure): Lefol et al. (1997).
- 821
- 822 With *Hirschfeldia incana*
- 823 • As male (failure): Salisbury (1991).
- 824 • As female (failure): Salisbury (1991).
- 825
- 826 With *Moricandia arvensis*
- 827 • As male (failure): Takahata & Takeda (1990).
- 828 • As female (failure): Takahata & Takeda (1990).
- 829
- 830 With *Myagrimum perfoliatum*
- 831 • As male (failure): Salisbury (1991).
- 832 • As female (failure): Salisbury (1991).
- 833
- 834 With *Orychophragmus violaceus*
- 835 • As female (success): Li & Heneen (1999*).
- 836 • As male (failure): Li & Heneen (1999).
- 837
- 838 With *Raphanus raphanistrum*
- 839 • As male (failure): Salisbury (1991); Lefol et al. (1997).
- 840 • As female (failure): Salisbury (1991); Lefol et al. (1997).
- 841
- 842 With *Raphanus sativus*
- 843 • As male (success): Richharia (1937); Mizushima (1950); Ellerström (1978).
- 844 • As female (success): Morris (1936); Richharia (1937); Mizushima (1950);
- 845 Ellerström (1978); Namai (1980); Luo et al. (2000a); Matsuzawa et al. (2000).
- 846 • As male (failure): Kakizaki (1925); Namai (1980); Takeshita et al. (1980); Gupta
- 847 (1997).
- 848 • As female (failure): Kakizaki (1925); Takeshita et al. (1980).
- 849
- 850 With *Sinapis alba*
- 851 • As male (failure): Sridevi & Sarla (1996).
- 852 • As female (failure): Sridevi & Sarla (1996).
- 853
- 854 With *Sinapis arvensis*
- 855 • As female (success): Mizushima (1950).
- 856 • As male (failure): Salisbury (1991); Bing et al. (1996a).
- 857 • As female (failure): Salisbury (1991); Bing et al. (1996a).

- 858
- 859 With *Sisymbrium irio*
- 860 • As male (failure): Salisbury (1991).
- 861 • As female (failure): Salisbury (1991).
- 862
- 863 *Raphanus sativus*
- 864
- 865 With *Brassica carinata*
- 866 • As male (success): Richharia (1937).
- 867 • As female (failure): Gupta (1997).
- 868
- 869 With *Brassica juncea*
- 870 • As male (failure): Kakizaki (1925).
- 871 • As female (failure): Kakizaki (1925); Gupta (1997).
- 872
- 873 With *Brassica napus*
- 874 • As male (success): Huang et al. (2002).
- 875 • As female (success): Paulmann & Röbbelen (1988).
- 876 • As male (failure): Takeshita et al. (1980); Lelivelt et al. (1993b).
- 877 • As female (failure): Takeshita et al. (1980); Lelivelt et al. (1993b); Metz et al.
- 878 (1995); Gupta (1997).
- 879
- 880 With *Brassica nigra*
- 881 • As male (failure): Kakizaki (1925).
- 882 • As female (failure): Kakizaki (1925).
- 883
- 884 With *Brassica oleracea*
- 885 • As male (success): Opena & Lo (1978).
- 886 • As female (success): Karpechenko (1924); Richharia (1937); McNaughton
- 887 (1973a); Ellerström & Zagorcheva (1977); Ellerström (1978); McCollum (1979);
- 888 Sarashima & Matsuzawa (1979); Namai (1980).
- 889 • As male (failure): Karpechenko (1924); Kakizaki (1925); McNaughton (1973a);
- 890 Eenink (1974); Ellerström (1978); Namai (1980); Takeshita et al. (1980).
- 891 • As female (failure): Kakizaki (1925).
- 892
- 893 With *Brassica oxyrrhina*
- 894 • As male (success): Bang et al. (1997).
- 895
- 896 With *Brassica rapa*
- 897 • As male (success): Morris (1936); Richharia (1937); Mizushima (1950);
- 898 Ellerström (1978); Namai (1980); Luo et al. (2000a); Matsuzawa et al. (2000).
- 899 • As female (success): Richharia (1937); Mizushima (1950); Ellerström (1978).
- 900 • As male (failure): Kakizaki (1925); Takeshita et al. (1980).
- 901 • As female (failure): Kakizaki (1925); Namai (1980); Takeshita et al. (1980);
- 902 Gupta (1997).

- 903
904 With *Brassica tournefortii*
905 • As male (success): Choudhary et al. (2000b).
906 • As female (failure): Choudhary et al. (2000b).
907
908 With *Sinapis alba*
909 • As male (failure): Bang et al. (1996a).
910
911 With *Sinapis arvensis*
912 • As male (success): Mizushima (1950); Bang et al. (1996a).
913
914 *Sinapis alba*
915
916 With *Brassica carinata*
917 • As male (failure): Sridevi & Sarla (1996).
918 • As female (failure): Sridevi & Sarla (1996).
919
920 With *Brassica juncea*
921 • As male (success): Bijral et al. (1991).
922 • As male (failure): Sharma & Singh (1992); Sridevi & Sarla (1996).
923 • As female (failure): Sridevi & Sarla (1996).
924
925 With *Brassica napus*
926 • As male (success): Heyn (1977).
927 • As male (failure): Lelivelt et al. (1993a); Sridevi & Sarla (1996).
928 • As female (failure): Lelivelt (1993); Lelivelt et al. (1993a); Sridevi & Sarla
929 (1996).
930
931 With *Brassica nigra*
932 • As female (success): Choudhary & Joshi (2000).
933 • As male (failure): Sridevi & Sarla (1996); Choudhary & Joshi (2000).
934 • As female (failure): Sridevi & Sarla (1996).
935
936 With *Brassica oleracea*
937 • As female (success): U et al. (1937).
938 • As male (failure): Sridevi & Sarla (1996).
939 • As female (failure): Sridevi & Sarla (1996).
940
941 With *Brassica rapa*
942 • As male (failure): Sridevi & Sarla (1996).
943 • As female (failure): Sridevi & Sarla (1996).
944
945 With *Raphanus sativus*
946 • As female (failure): Bang et al. (1996a).
947

948 **Online Appendix 2: F₁ (*in vitro*) sources**

949 Papers documenting hybridisation using *in vitro* methods, including cross direction and
950 success/failure used in making Figures 4. ‘Success’ means that any trial in the article was
951 successful, while ‘Fail’ means that all trials were unsuccessful. Articles that successfully
952 produced hybrids, but reported one or more trials where hybrids were not produced, are
953 indicated with an asterisk (*). In lists ‘As male’ or ‘As female’ refer to the role of the
954 crop species in the cross. Note that crosses where both parents are crops species
955 (*Brassica carinata*, *B. juncea*, *B. napus*, *B. nigra*, *B. oleracea*, *B. rapa*, *Raphanus sativus*
956 and *Sinapis alba*) are listed twice.

957

958 *Brassica carinata*

959

960 With *Brassica juncea*

- 961 • As male (success): Sharma & Singh (1992).

962

963 With *Brassica maurorum*

- 964 • As male (success): Chrungu et al. (1999).

965

966 With *Brassica napus*

- 967 • As male (success): Sacristán & Gerdemann (1986).

- 968 • As female (success): Sabharwal & Dolezel (1993).

969

970 With *Brassica nigra*

- 971 • As female (success): Attia et al. (1987).

972

973 With *Brassica oleracea*

- 974 • As male (success): Attia et al. (1987); Rahman (2001).

- 975 • As female (success): Tonguç & Griffiths (2004).

- 976 • As male (failure): Tonguç & Griffiths (2004).

977

978 With *Brassica rapa*

- 979 • As male (success): Busso et al. (1987).

- 980 • As female (success): Busso et al. (1987); Meng et al. (1998).

981

982 With *Enarthrocarpus lyratus*

- 983 • As male (success): Gundimeda et al. (1992).

- 984 • As female (failure): Gundimeda et al. (1992).

985

986 With *Erucastrum abyssinicum*

- 987 • As male (success): Rao et al. (1996).

988

989 With *Sinapis alba*

- 990 • As male (success): Sridevi & Sarla (1996).

- 991 • As female (success): Sridevi & Sarla (1996).

- 992 • As male (failure): Momotaz et al. (1998).

- 993 • As female (failure): Momotaz et al. (1998).

- 994
995 With *Sinapis arvensis*
996 • As female (success): Momotaz et al. (1998).
997 • As male (failure): Momotaz et al. (1998).
998
999 Brassica juncea
1000
1001 With *Brassica carinata*
1002 • As female (success): Sharma & Singh (1992).
1003
1004 With *Brassica gravinae*
1005 • As female (success): Nanda Kumar et al. (1988b).
1006 • As male (failure): Nanda Kumar et al. (1988b).
1007
1008 With *Brassica maurorum*
1009 • As male (success): Chrungu et al. (1999).
1010
1011 With *Brassica napus*
1012 • As male (success): Bajaj et al. (1986); Sacristán & Gerdemann (1986); Sabharwal
1013 & Dolezel (1993).
1014 • As female (success): Bajaj et al. (1986); Sharma & Singh (1992); Sabharwal &
1015 Dolezel (1993).
1016
1017 With *Brassica oleracea*
1018 • As male (success): Busso et al. (1987).
1019 • As female (success): Busso et al. (1987).
1020
1021 With *Brassica rapa*
1022 • As male (success): Takeshita et al. (1980); Mekiyanon et al. (1995).
1023 • As female (success): Mohapatra & Bajaj (1988); Sharma & Singh (1992).
1024 • As female (failure): Takeshita et al. (1980).
1025
1026 With *Brassica tournefortii*
1027 • As female (success): Goyal et al. (1997).
1028
1029 With *Crambe abyssinica*
1030 • As female (success): Wang & Luo (1998).
1031
1032 With *Diplotaxis erucoides*
1033 • As male (success): Vyas et al. (1995).
1034
1035 With *Diplotaxis siifolia*
1036 • As male (success): Batra et al. (1990); Ahuja et al. (2003).
1037 • As female (failure): Batra et al. (1990); Ahuja et al. (2003).

- 1038
 1039 With *Diplotaxis virgata*
 1040 • As female (success): Inomata (2003).
 1041
 1042 With *Enarthrocarpus lyratus*
 1043 • As female (success): Gundimeda et al. (1992).
 1044 • As male (failure): Gundimeda et al. (1992).
 1045
 1046 With *Eruca vesicaria*
 1047 • As female (success): Goswami & Devi (2002).
 1048
 1049 With *Erucastrum abyssinicum*
 1050 • As male (success): Rao et al. (1996); Sarmah & Sarla (1997).
 1051
 1052 With *Erucastrum virgatum*
 1053 • As female (success): Inomata (2001).
 1054
 1055 With *Moricandia arvensis*
 1056 • As male (success): Takahata et al. (1993).
 1057 • As female (failure): Takahata et al. (1993).
 1058
 1059 With *Sinapis alba*
 1060 • As male (success): Mahapatra & Bajaj (1984); Sridevi & Sarla (1996).
 1061 • As female (success): Mahapatra & Bajaj (1984); Mohapatra & Bajaj (1987);
 1062 Sharma & Singh (1992); Sridevi & Sarla (1996).
 1063 • As male (failure): Mohapatra & Bajaj (1987).
 1064
 1065 With *Sinapis pubescens*
 1066 • As female (success): Inomata (1991).
 1067 • As male (failure): Inomata (1991).
 1068
 1069 Brassica napus
 1070
 1071 With *Brassica carinata*
 1072 • As male (success): Sabharwal & Dolezel (1993).
 1073 • As female (success): Sacristán & Gerdemann (1986).
 1074
 1075 With *Brassica gravinae*
 1076 • As female (success): Nanda Kumar et al. (1988b).
 1077 • As male (failure): Nanda Kumar et al. (1988b).
 1078
 1079 With *Brassica juncea*
 1080 • As male (success): Bajaj et al. (1986); Sharma & Singh (1992); Sabharwal &
 1081 Dolezel (1993).
 1082 • As female (success): Bajaj et al. (1986); Sacristán & Gerdemann (1986);
 1083 Sabharwal & Dolezel (1993).

- 1084
 1085 With *Brassica maurorum*
 1086 • As male (success): Chrungu et al. (1999).
 1087
 1088 With *Brassica nigra*
 1089 • As male (success): Busso et al. (1987).
 1090 • As female (success): Busso et al. (1987); Diederichsen & Sacristán (1988); Jahier
 1091 et al. (1989); Kerlan et al. (1992).
 1092 • As male (failure): Diederichsen & Sacristán (1988); Kerlan et al. (1992).
 1093
 1094 With *Brassica oleracea*
 1095 • As male (success): Takeshita et al. (1980); Quazi (1988); Kerlan et al. (1992).
 1096 • As female (success): Zwierzykowska (1981); Ayotte et al. (1987); Quazi (1988);
 1097 Kerlan et al. (1992); Chèvre et al. (1996); Ripley & Beversdorf (2003).
 1098 • As male (failure): Hossain et al. (1988); Repkova & Smolíková (1988).
 1099
 1100 With *Brassica rapa*
 1101 • As male (success): Attia et al. (1987); Quiros et al. (1987); Sabharwal & Dolezel
 1102 (1993).
 1103 • As female (success): Attia et al. (1987); Quiros et al. (1987); Sabharwal &
 1104 Dolezel (1993).
 1105
 1106 With *Diplotaxis erucoïdes*
 1107 • As male (success): Delourme et al. (1989); Vyas et al. (1995).
 1108
 1109 With *Diplotaxis harra*
 1110 • As female (success): Inomata (2005).
 1111
 1112 With *Diplotaxis siifolia*
 1113 • As male (success): Batra et al. (1990).
 1114 • As female (failure): Batra et al. (1990).
 1115
 1116 With *Diplotaxis tenuifolia*
 1117 • As male (failure): Zenkteler (1990).
 1118 • As female (failure): Zenkteler (1990).
 1119
 1120 With *Diplotaxis virgata*
 1121 • As female (success): Inomata (2002a).
 1122
 1123 With *Enarthrocarpus lyratus*
 1124 • As male (success): Gundimeda et al. (1992).
 1125 • As female (failure): Gundimeda et al. (1992).
 1126
 1127 With *Hirschfeldia incana*
 1128 • As male (success): Lefol et al. (1991); Kerlan et al. (1992); Chèvre et al. (1996).

- 1129 • As female (success): Lefol et al. (1991, 1996b); Kerlan et al. (1992); Chèvre et al.
1130 (1996).
- 1131 • As male (failure): Lefol et al. (1996b).
- 1132
- 1133 With *Moricandia arvensis*
- 1134 • As male (success): Takahata et al. (1993); Meng et al. (1997); Rawsthorne et al.
1135 (1998).
- 1136 • As male (failure): Zenkteler (1990).
- 1137 • As female (failure): Zenkteler (1990); Takahata et al. (1993).
- 1138
- 1139 With *Orychophragmus violaceus*
- 1140 • As female (success): Luo et al. (1994); Li et al. (1995).
- 1141 • As male (failure): Li et al. (1995).
- 1142
- 1143 With *Raphanus raphanistrum*
- 1144 • As male (success): Kerlan et al. (1992); Chèvre et al. (1996); Darmency et al.
1145 (1998).
- 1146 • As female (success): Kerlan et al. (1992); Chèvre et al. (1996).
- 1147
- 1148 With *Raphanus sativus*
- 1149 • As male (success): Metz et al. (1995).
- 1150 • As female (success): Takeshita et al. (1980); Luo et al. (2000b).
- 1151 • As male (failure): Takeshita et al. (1980); Lelivelt et al. (1993b).
- 1152 • As female (failure): Lelivelt et al. (1993b).
- 1153
- 1154 With *Sinapis alba*
- 1155 • As male (success): Ripley & Arnison (1990); Mathias (1991); Chèvre et al.
1156 (1994); Brown et al. (1997).
- 1157 • As female (success): Chèvre et al. (1994); Sridevi & Sarla (1996).
- 1158 • As male (failure): Sridevi & Sarla (1996).
- 1159 • As female (failure): Ripley & Arnison (1990); Zenkteler (1990); Mathias (1991);
1160 Brown et al. (1997).
- 1161
- 1162 With *Sinapis arvensis*
- 1163 • As male (success): Mathias (1991); Lefol et al. (1996a).
- 1164 • As female (success): Inomata (1988); Kerlan et al. (1992); Bing et al. (1995);
1165 Chèvre et al. (1996); Lefol et al. (1996a).
- 1166 • As male (failure): Kerlan et al. (1992); Bing et al. (1995); Chèvre et al. (1996).
- 1167 • As female (failure): Mathias (1991).
- 1168
- 1169 With *Sinapis pubescens*
- 1170 • As male (failure): Inomata (1991, 1994).
- 1171 • As female (failure): Inomata (1991).
- 1172

- 1173 Brassica nigra
 1174
 1175 With Brassica carinata
 1176 • As male (success): Attia et al. (1987).
 1177
 1178 With Brassica maurorum
 1179 • As male (success): Chrungu et al. (1999).
 1180
 1181 With Brassica napus
 1182 • As male (success): Busso et al. (1987); Diederichsen & Sacristán (1988); Jahier et
 1183 al. (1989); Kerlan et al. (1992).
 1184 • As female (success): Busso et al. (1987).
 1185 • As female (failure): Diederichsen & Sacristán (1988); Kerlan et al. (1992).
 1186
 1187 With Brassica oleracea
 1188 • As male (success): Prakash et al. (1984); Diederichsen & Sacristán (1988); Song
 1189 et al. (1993).
 1190 • As female (success): Sarla et al. (1987); Diederichsen & Sacristán (1988); Sarla &
 1191 Raut (1988); Song et al. (1993); Chèvre et al. (1997).
 1192 • As male (failure): Chèvre et al. (1997).
 1193
 1194 With Brassica rapa
 1195 • As male (success): Diederichsen & Sacristán (1988); Tang & Williams (1988);
 1196 Song et al. (1993); Bhat & Sarla (1996); Srivastava et al. (2004).
 1197 • As female (success): Matsuzawa et al. (1987); Song et al. (1993); Bhat & Sarla
 1198 (1996).
 1199
 1200 With Brassica tournefortii
 1201 • As male (success): Nagpal et al. (1996).
 1202
 1203 With Diplotaxis eruroides
 1204 • As male (success): Quiros et al. (1988).
 1205
 1206 With Enarthrocarpus lyratus
 1207 • As male (failure): Gundimeda et al. (1992).
 1208 • As female (failure): Gundimeda et al. (1992).
 1209
 1210 With Eruca vesicaria
 1211 • As male (failure): Matsuzawa & Sarashima (1986b).
 1212
 1213 With Erucastrum cardaminoides
 1214 • As male (success): Chandra et al. (2004a).
 1215
 1216 With Hirschfeldia incana
 1217 • As female (success): Quiros et al. (1988).
 1218 • As male (failure): Quiros et al. (1988).

- 1219
- 1220 With *Moricandia arvensis*
- 1221 • As male (success): Takahata & Takeda (1990).
- 1222
- 1223 With *Raphanus sativus*
- 1224 • As male (success): Matsuzawa & Sarashima (1986a).
- 1225 • As female (success): Matsuzawa & Sarashima (1984, 1986a).
- 1226
- 1227 With *Sinapis alba*
- 1228 • As male (failure): Sridevi & Sarla (1996).
- 1229 • As female (failure): Sridevi & Sarla (1996).
- 1230
- 1231 Brassica oleracea
- 1232
- 1233 With *Brassica carinata*
- 1234 • As male (success): Tonguç & Griffiths (2004).
- 1235 • As female (success): Attia et al. (1987); Rahman (2001).
- 1236 • As female (failure): Tonguç & Griffiths (2004).
- 1237
- 1238 With *Brassica juncea*
- 1239 • As male (success): Busso et al. (1987).
- 1240 • As female (success): Busso et al. (1987).
- 1241
- 1242 With *Brassica maurorum*
- 1243 • As male (success): Chrungu et al. (1999).
- 1244
- 1245 With *Brassica napus*
- 1246 • As male (success): Zwierzykowska (1981); Ayotte et al. (1987); Quazi (1988);
- 1247 Kerlan et al. (1992); Chèvre et al. (1996); Ripley & Beversdorf (2003).
- 1248 • As female (success): Takeshita et al. (1980); Quazi (1988); Kerlan et al. (1992).
- 1249 • As female (failure): Hossain et al. (1988); Repkova & Smolíkova (1988).
- 1250
- 1251 With *Brassica nigra*
- 1252 • As male (success): Sarla et al. (1987); Diederichsen & Sacristán (1988); Sarla &
- 1253 Raut (1988); Song et al. (1993); Chèvre et al. (1997).
- 1254 • As female (success): Prakash et al. (1984); Diederichsen & Sacristán (1988);
- 1255 Song et al. (1993).
- 1256 • As female (failure): Chèvre et al. (1997).
- 1257
- 1258 With *Brassica rapa*
- 1259 • As male (success): Honma & Heeckt (1960); Inomata (1977, 1978a, 1978b, 1979,
- 1260 1983a, 1984); Takeshita et al. (1980); Zwierzykowska (1981); Tang & Williams
- 1261 (1988); Hossain et al. (1989); Song et al. (1993); Crouch et al. (1994);
- 1262 Diederichsen & Sacristán (1994); Ozminkowski & Jourdan (1994); Mekiyanon et
- 1263 al. (1995); Lu et al. (2001b); Seyis et al. (2003); Zhang et al. (2004).

- 1264 • As female (success): Snell (1977); Takeshita et al. (1980); Yamagishi et al.
 1265 (1980); Chen et al. (1988); Hossain et al. (1988, 1989); Repkova & Smolíkova
 1266 (1988); Song et al. (1993); Diederichsen & Sacristán (1994); Ozminkowski &
 1267 Jourdan (1994); Lu et al. (2001b); Seyis et al. (2003).
 1268 • As female (failure): Inomata (1977, 1978a).
 1269
 1270 With *Diplotaxis eruroides*
 1271 • As male (success): Vyas et al. (1995).
 1272
 1273 With *Diplotaxis tenuifolia*
 1274 • As male (failure): Zenkteler (1990).
 1275 • As female (failure): Zenkteler (1990).
 1276
 1277 With *Enarthrocarpus lyratus*
 1278 • As male (success): Gundimeda et al. (1992).
 1279 • As female (failure): Gundimeda et al. (1992).
 1280
 1281 With *Eruca vesicaria*
 1282 • As male (success): Matsuzawa & Sarashima (1986b).
 1283
 1284 With *Erucastrum abyssinicum*
 1285 • As male (success): Rao et al. (1996); Sarmah & Sarla (1998).
 1286
 1287 With *Moricandia arvensis*
 1288 • As male (success): Takahata (1990).
 1289 • As female (success): Beschorner et al. (1999).
 1290 • As male (failure): Zenkteler (1990).
 1291 • As female (failure): Takahata (1990); Zenkteler (1990).
 1292
 1293 With *Orychophragmus violaceus*
 1294 • As female (success): Li & Heneen (1999).
 1295
 1296 With *Raphanus sativus*
 1297 • As male (success): Hossain et al. (1990).
 1298 • As female (success): Hossain et al. (1988, 1990).
 1299 • As female (failure): Takeshita et al. (1980).
 1300
 1301 With *Sinapis alba*
 1302 • As female (success): Momotaz et al. (1998).
 1303 • As male (failure): Sridevi & Sarla (1996); Momotaz et al. (1998).
 1304 • As female (failure): Zenkteler (1990); Sridevi & Sarla (1996).
 1305
 1306 With *Sinapis arvensis*
 1307 • As male (failure): Momotaz et al. (1998).
 1308 • As female (failure): Momotaz et al. (1998).
 1309

- 1310 Brassica rapa
1311
1312 With Brassica bourgeau
1313 • As female (success): Inomata (1986).
1314
1315 With Brassica carinata
1316 • As male (success): Busso et al. (1987); Meng et al. (1998).
1317 • As female (success): Busso et al. (1987).
1318
1319 With Brassica cretica
1320 • As female (success): Inomata (1985).
1321
1322 With Brassica fruticulosa
1323 • As male (success): Nanda Kumar & Shivanna (1986); Nanda Kumar et al. (1988a,
1324 1988b); Chandra et al. (2004b).
1325 • As female (success): Nanda Kumar et al. (1988b).
1326
1327 With Brassica juncea
1328 • As male (success): Mohapatra & Bajaj (1988); Sharma & Singh (1992).
1329 • As female (success): Takeshita et al. (1980); Mekiyanon et al. (1995).
1330 • As male (failure): Takeshita et al. (1980).
1331
1332 With Brassica maurorum
1333 • As male (success): Chrungu et al. (1999).
1334
1335 With Brassica montana
1336 • As female (success): Inomata (1987).
1337
1338 With Brassica napus
1339 • As male (success): Attia et al. (1987); Quiros et al. (1987); Sabharwal & Dolezel
1340 (1993).
1341 • As female (success): Attia et al. (1987); Quiros et al. (1987); Sabharwal &
1342 Dolezel (1993).
1343
1344 With Brassica nigra
1345 • As male (success): Matsuzawa et al. (1987); Song et al. (1993); Bhat & Sarla
1346 (1996).
1347 • As female (success): Diederichsen & Sacristán (1988); Tang & Williams (1988);
1348 Song et al. (1993); Bhat & Sarla (1996); Srivastava et al. (2004).
1349
1350 With Brassica oleracea
1351 • As male (success): Snell (1977); Takeshita et al. (1980); Yamagishi et al. (1980);
1352 Chen et al. (1988); Hossain et al. (1988, 1989); Repkova & Smolíková (1988);
1353 Song et al. (1993); Diederichsen & Sacristán (1994); Ozminkowski & Jourdan
1354 (1994); Lu et al. (2001b); Seyis et al. (2003).

- 1355 • As female (success): Honma & Heeckt (1960); Inomata (1977, 1978a, 1978b,
1356 1979, 1983a, 1984); Takeshita et al. (1980); Zwierzykowska (1981); Tang &
1357 Williams (1988); Hossain et al. (1989); Song et al. (1993); Crouch et al. (1994);
1358 Diederichsen & Sacristán (1994); Ozminkowski & Jourdan (1994); Mekiyanon et
1359 al. (1995); Lu et al. (2001b); Seyis et al. (2003); Zhang et al. (2004).
- 1360 • As male (failure): Inomata (1977, 1978a).
1361
- 1362 With *Brassica oxyrrhina*
- 1363 • As male (success): Prakash & Chopra (1990b).
1364
- 1365 With *Brassica spinescens*
- 1366 • As female (success): Inomata (2000).
1367
- 1368 With *Brassica tournefortii*
- 1369 • As male (success): Nagpal et al. (1996).
1370
- 1371 With *Diplotaxis erucooides*
- 1372 • As male (success): Vyas et al. (1995).
1373
- 1374 With *Diplotaxis siettiana*
- 1375 • As male (success): Nanda Kumar & Shivanna (1993).
1376 • As female (failure): Nanda Kumar & Shivanna (1993).
1377
- 1378 With *Diplotaxis siifolia*
- 1379 • As male (success): Ahuja et al. (2003).
1380 • As male (failure): Batra et al. (1990).
1381 • As female (failure): Batra et al. (1990); Ahuja et al. (2003).
1382
- 1383 With *Diplotaxis virgata*
- 1384 • As female (success): Inomata (1999).
1385
- 1386 With *Enarthrocarpus lyratus*
- 1387 • As male (success): Gundimeda et al. (1992).
1388 • As female (failure): Gundimeda et al. (1992).
1389
- 1390 With *Eruca vesicaria*
- 1391 • As male (success): Matsuzawa & Sarashima (1986b); Agnihotri et al. (1990a);
1392 Matsuzawa et al. (1999).
1393 • As female (success): Robers et al. (1999).
1394
- 1395 With *Erucastrum canariense*
- 1396 • As male (success): Bhaskar et al. (2002).
1397
- 1398 With *Erucastrum cardaminoides*
- 1399 • As male (success): Chandra et al. (2004a).

- 1400
- 1401 With *Moricandia arvensis*
- 1402 • As male (success): Takahata & Takeda (1990).
- 1403 • As female (success): Takahata & Takeda (1990); Matsuzawa et al. (1998).
- 1404
- 1405 With *Orychophragmus violaceus*
- 1406 • As female (success): Wu & Jiang (1996).
- 1407
- 1408 With *Raphanus sativus*
- 1409 • As female (success): Lee & Yoon (1987); Tang & Williams (1988); Wu & Luo
- 1410 (2000).
- 1411 • As male (failure): Takeshita et al. (1980).
- 1412 • As female (failure): Takeshita et al. (1980).
- 1413
- 1414 With *Sinapis alba*
- 1415 • As female (success): Jandurová & Dolezel (1995); Sridevi & Sarla (1996).
- 1416 • As male (failure): Jandurová & Dolezel (1995); Sridevi & Sarla (1996); Momotaz
- 1417 et al. (1998).
- 1418 • As female (failure): Momotaz et al. (1998).
- 1419
- 1420 With *Sinapis arvensis*
- 1421 • As male (success): Momotaz et al. (1998).
- 1422 • As female (success): Inomata (1996); Momotaz et al. (1998).
- 1423
- 1424 *Raphanus sativus*
- 1425
- 1426 With *Brassica fruticulosa*
- 1427 • As male (success): Bang et al. (1997).
- 1428 • As female (success): Bang et al. (1997).
- 1429
- 1430 With *Brassica maurorum*
- 1431 • As male (success): Bang et al. (1997).
- 1432 • As female (failure): Bang et al. (1997).
- 1433
- 1434 With *Brassica napus*
- 1435 • As male (success): Takeshita et al. (1980); Luo et al. (2000b).
- 1436 • As female (success): Metz et al. (1995).
- 1437 • As male (failure): Lelivelt et al. (1993b).
- 1438 • As female (failure): Takeshita et al. (1980); Lelivelt et al. (1993b).
- 1439
- 1440 With *Brassica nigra*
- 1441 • As male (success): Matsuzawa & Sarashima (1984, 1986a).
- 1442 • As female (success): Matsuzawa & Sarashima (1986a).
- 1443
- 1444 With *Brassica oleracea*
- 1445 • As male (success): Hossain et al. (1988, 1990).

- 1446 • As female (success): Hossain et al. (1990).
- 1447 • As male (failure): Takeshita et al. (1980).
- 1448
- 1449 With *Brassica oxyrrhina*
- 1450 • As male (success): Bang et al. (1997).
- 1451 • As female (failure): Bang et al. (1997).
- 1452
- 1453 With *Brassica rapa*
- 1454 • As male (success): Lee & Yoon (1987); Tang & Williams (1988); Wu & Luo
- 1455 (2000).
- 1456 • As male (failure): Takeshita et al. (1980).
- 1457 • As female (failure): Takeshita et al. (1980).
- 1458
- 1459 With *Diplotaxis tenuifolia*
- 1460 • As male (success): Bang et al. (2003).
- 1461 • As female (failure): Bang et al. (2003).
- 1462
- 1463 With *Eruca vesicaria*
- 1464 • As male (success): Matsuzawa & Sarashima (1986b).
- 1465
- 1466 With *Moricandia arvensis*
- 1467 • As male (success): Bang et al. (1995, 1996b).
- 1468 • As female (failure): Bang et al. (1996b).
- 1469
- 1470 With *Sinapis alba*
- 1471 • As male (success): Bang et al. (1996a).
- 1472 • As female (success): Bang et al. (1996a).
- 1473
- 1474 With *Sinapis arvensis*
- 1475 • As male (success): Bang et al. (1996a).
- 1476 • As female (success): Bang et al. (1996a).
- 1477
- 1478 With *Sinapis pubescens*
- 1479 • As female (success): Bang et al. (1996a).
- 1480 • As male (failure): Bang et al. (1996a).
- 1481
- 1482 Sinapis alba
- 1483
- 1484 With *Brassica carinata*
- 1485 • As male (success): Sridevi & Sarla (1996).
- 1486 • As female (success): Sridevi & Sarla (1996).
- 1487 • As male (failure): Momotaz et al. (1998).
- 1488 • As female (failure): Momotaz et al. (1998).

- 1489
- 1490 With *Brassica juncea*
- 1491 • As male (success): Mahaptra & Bajaj (1984); Mohapatra & Bajaj (1987); Sharma
- 1492 & Singh (1992); Sridevi & Sarla (1996).
- 1493 • As female (success): Mahaptra & Bajaj (1984); Sridevi & Sarla (1996).
- 1494 • As female (failure): Mohapatra & Bajaj (1987).
- 1495
- 1496 With *Brassica napus*
- 1497 • As male (success): Chèvre et al. (1994); Sridevi & Sarla (1996).
- 1498 • As female (success): Ripley & Arnison (1990); Mathias (1991); Chèvre et al.
- 1499 (1994); Brown et al. (1997).
- 1500 • As male (failure): Ripley & Arnison (1990); Zenkteler (1990); Mathias (1991);
- 1501 Brown et al. (1997).
- 1502 • As female (failure): Sridevi & Sarla (1996).
- 1503
- 1504 With *Brassica nigra*
- 1505 • As male (failure): Sridevi & Sarla (1996).
- 1506 • As female (failure): Sridevi & Sarla (1996).
- 1507
- 1508 With *Brassica oleracea*
- 1509 • As male (success): Momotaz et al. (1998).
- 1510 • As male (failure): Zenkteler (1990); Sridevi & Sarla (1996).
- 1511 • As female (failure): Sridevi & Sarla (1996); Momotaz et al. (1998).
- 1512
- 1513 With *Brassica rapa*
- 1514 • As male (success): Jandurová & Dolezel (1995); Sridevi & Sarla (1996).
- 1515 • As male (failure): Momotaz et al. (1998).
- 1516 • As female (failure): Jandurová & Dolezel (1995); Sridevi & Sarla (1996);
- 1517 Momotaz et al. (1998).
- 1518
- 1519 With *Raphanus sativus*
- 1520 • As male (success): Bang et al. (1996a).
- 1521 • As female (success): Bang et al. (1996a).
- 1522
- 1523

1524 **Online Appendix 3: BC₁ (experimental) sources**
1525 Papers documenting backcrosses, used for making Figure 5. ‘Success’ means that *any*
1526 trial in the article was successful, while ‘Fail’ means that all trials were unsuccessful.
1527 Articles that successfully produced hybrids, but reported one or more trials where hybrids
1528 were not produced are indicated with an asterisk (*). In lists ‘As male’ or ‘As female’
1529 refer to the role of the crop species in the cross. Note that crosses where both parents are
1530 crops species (*Brassica carinata*, *B. juncea*, *B. napus*, *B. nigra*, *B. oleracea*, *B. rapa*,
1531 *Raphanus sativus* and *Sinapis alba*) are listed twice.
1532
1533
1534
1535 Brassica carinata
1536
1537 With *Brassica juncea*
1538 • As male (success): Rahman (1976).
1539 • As female (success): Getinet et al. (1994, 1997).
1540
1541 With *Brassica napus*
1542 • As male (success): Roy (1980); Sacristán & Gerdemann (1986); Wahiduzzaman
1543 (1987); Fernandez-Escobar et al. (1988); Rashid et al. (1994).
1544 • As female (success): Wahiduzzaman (1987); Fernandez-Escobar et al. (1988);
1545 Getinet et al. (1997).
1546
1547 With *Brassica oleracea*
1548 • As male (success): Barcikowska (1986); Rahman (2001).
1549 • As female (success): Rahman (2001); Tonguç & Griffiths (2004).
1550
1551 With *Brassica rapa*
1552 • As female (failure): Choudhary et al. (2000a).
1553
1554 With *Enarthrocarpus lyratus*
1555 • As male (success): Gundimeda et al. (1992).
1556
1557 With *Erucastrum abyssinicum*
1558 • As male (failure): Rao et al. (1996).
1559
1560 Brassica juncea
1561
1562 With *Brassica carinata*
1563 • As male (success): Getinet et al. (1994, 1997).
1564 • As female (success): Rahman (1976).
1565
1566 With *Brassica napus*
1567 • As male (success): Roy (1980); Yamagishi & Takayanagi (1982); Fan et al.
1568 (1986); Sacristán & Gerdemann (1986); Wahiduzzaman (1987); Prakash &
1569 Chopra (1990a); Rao & Raut (1994); Rashid et al. (1994).

- 1570 • As female (success): Roy (1980); Mathias (1985); Wahiduzzaman (1987);
 1571 Prakash & Chopra (1988); Rao & Raut (1994); Frello et al. (1995).
 1572
 1573 With *Brassica rapa*
 1574 • As female (success): Love et al. (1990); Katiyar & Chamola (1995, 1998).
 1575
 1576 With *Diplotaxis erucoides*
 1577 • As female (failure): Inomata (1998).
 1578
 1579 With *Diplotaxis siifolia*
 1580 • As male (failure): Batra et al. (1990).
 1581
 1582 With *Diplotaxis virgata*
 1583 • As female (success): Inomata (2003).
 1584
 1585 With *Enarthrocarpus lyratus*
 1586 • As female (success): Gundimeda et al. (1992).
 1587
 1588 With *Erucastrum abyssinicum*
 1589 • As male (failure): Rao et al. (1996).
 1590
 1591 With *Erucastrum virgatum*
 1592 • As female (failure): Inomata (2001).
 1593
 1594 With *Sinapis pubescens*
 1595 • As female (failure): Inomata (1991).
 1596
 1597 Brassica napus
 1598
 1599 With *Brassica bourgeau*
 1600 • As female (failure): Inomata (2002b).
 1601
 1602 With *Brassica carinata*
 1603 • As male (success): Wahiduzzaman (1987); Fernandez-Escobar et al. (1988);
 1604 Getinet et al. (1997).
 1605 • As female (success): Roy (1980); Sacristán & Gerdemann (1986); Wahiduzzaman
 1606 (1987); Fernandez-Escobar et al. (1988); Rashid et al. (1994).
 1607
 1608 With *Brassica cretica*
 1609 • As female (success): Inomata (2002b).
 1610
 1611 With *Brassica fruticulosa*
 1612 • As female (failure): Heyn (1977).

- 1613
- 1614 With *Brassica juncea*
- 1615 • As male (success): Roy (1980); Mathias (1985); Wahiduzzaman (1987); Prakash
- 1616 & Chopra (1988); Rao & Raut (1994); Frello et al. (1995).
- 1617 • As female (success): Roy (1980); Yamagishi & Takayanagi (1982); Fan et al.
- 1618 (1986); Sacristán & Gerdemann (1986); Wahiduzzaman (1987); Prakash &
- 1619 Chopra (1990a); Rao & Raut (1994); Rashid et al. (1994).
- 1620
- 1621 With *Brassica montana*
- 1622 • As female (success): Inomata (2002b).
- 1623
- 1624 With *Brassica nigra*
- 1625 • As male (success): Zhu & Struss (1991).
- 1626 • As female (success): Jahier et al. (1989); Zhu & Struss (1991).
- 1627
- 1628 With *Brassica oleracea*
- 1629 • As male (success): Wahiduzzaman (1987); Quazi (1988).
- 1630 • As female (success): Honma & Summers (1976); Chiang et al. (1977); Yamagishi
- 1631 & Takayanagi (1982); Wahiduzzaman (1987); Ayotte et al. (1988b*); Quazi
- 1632 (1988); Chèvre et al. (1996); Inomata (2002b); Ripley & Beversdorf (2003).
- 1633
- 1634 With *Brassica rapa*
- 1635 • As male (success): Beversdorf et al. (1980); Anand & Downey (1981); Gowers
- 1636 (1982); Mero & Honma (1984); Pellan-Delourme & Renard (1987);
- 1637 Wahiduzzaman (1987); Leckie et al. (1993); Metz et al. (1997); Hauser et al.
- 1638 (1998b); Halfhill et al. (2001, 2002*, 2004); Hansen et al. (2001); Pertl et al.
- 1639 (2002); Zhu et al. (2004).
- 1640 • As female (success): Nwankiti (1970); Mackay (1977); Yamagishi & Takayanagi
- 1641 (1982); Mero & Honma (1984); Quiros et al. (1987); Wahiduzzaman (1987);
- 1642 Chen et al. (1990); Goring et al. (1992); Cheng et al. (1994); J. Brown et al.
- 1643 (1996); Mikkelsen et al. (1996b); Jørgensen et al. (1998); Verma et al. (2000);
- 1644 Lewis et al. (2001).
- 1645
- 1646 With *Brassica tournefortii*
- 1647 • As female (failure): Heyn (1977).
- 1648
- 1649 With *Diplotaxis erucooides*
- 1650 • As male (success): Ringdahl et al. (1987); Vyas et al. (1995).
- 1651
- 1652 With *Diplotaxis harra*
- 1653 • As female (success): Inomata (2005).
- 1654
- 1655 With *Diplotaxis muralis*
- 1656 • As male (success): Fan et al. (1985); Ringdahl et al. (1987); Salisbury (1991).

- 1657
- 1658 With *Diplotaxis virgata*
- 1659 • As female (failure): Inomata (2002a).
- 1660
- 1661 With *Enarthrocarpus lyratus*
- 1662 • As male (success): Gundimeda et al. (1992).
- 1663
- 1664 With *Erucastrum gallicum*
- 1665 • As female (success): Lefol et al. (1997).
- 1666
- 1667 With *Hirschfeldia incana*
- 1668 • As male (success): Darmency & Fleury (2000).
- 1669 • As female (success): Eber et al. (1994); Chèvre et al. (1996).
- 1670
- 1671 With *Moricandia arvensis*
- 1672 • As male (success): Takahata et al. (1993*).
- 1673
- 1674 With *Raphanus raphanistrum*
- 1675 • As male (success): Benabdelmouna et al. (2003).
- 1676 • As female (success): Eber et al. (1994); Baranger et al. (1995); Chèvre et al. (1996, 1998a); Lefol et al. (1997*); Rieger et al. (2001*).
- 1677
- 1678
- 1679 With *Raphanus sativus*
- 1680 • As female (success): Huang et al. (2002).
- 1681
- 1682 With *Sinapis alba*
- 1683 • As male (success): Lelivelt et al. (1993a).
- 1684
- 1685 With *Sinapis arvensis*
- 1686 • As female (success): Inomata (1988, 1997); Bing et al. (1995); Chèvre et al. (1996); Moyes et al. (2002*).
- 1687 • As male (failure): Moyes et al. (2002).
- 1688
- 1689
- 1690 With *Sinapis pubescens*
- 1691 • As female (failure): Inomata (1991, 1994).
- 1692
- 1693 Brassica nigra
- 1694
- 1695 With *Brassica fruticulosa*
- 1696 • As female (failure): Salisbury (1991).
- 1697
- 1698 With *Brassica napus*
- 1699 • As male (success): Jahier et al. (1989); Zhu & Struss (1991).
- 1700 • As female (success): Zhu & Struss (1991).

- 1701
- 1702 With *Brassica rapa*
- 1703 • As male (success): Olsson (1960a^{*}); Bing et al. (1996a).
- 1704
- 1705 With *Brassica tournefortii*
- 1706 • As male (failure): Nagpal et al. (1996).
- 1707
- 1708 With *Diplotaxis tenuifolia*
- 1709 • As male (failure): Salisbury (1991).
- 1710
- 1711 With *Hirschfeldia incana*
- 1712 • As female (failure): Salisbury (1991).
- 1713
- 1714 With *Orychophragmus violaceus*
- 1715 • As female (success): Li & Heneen (1999).
- 1716
- 1717 With *Raphanus sativus*
- 1718 • As female (success): Matsuzawa & Sarashima (1986a).
- 1719
- 1720 With *Sinapis alba*
- 1721 • As male (failure): Choudhary & Joshi (2000).
- 1722
- 1723 With *Sinapis arvensis*
- 1724 • As female (failure): Banga & Labana (1991).
- 1725
- 1726 Brassica oleracea
- 1727
- 1728 With *Brassica carinata*
- 1729 • As male (success): Rahman (2001); Tonguç & Griffiths (2004).
- 1730 • As female (success): Barcikowska (1986); Rahman (2001).
- 1731
- 1732 With *Brassica napus*
- 1733 • As male (success): Honma & Summers (1976); Chiang et al. (1977); Yamagishi
- 1734 & Takayanagi (1982); Wahiduzzaman (1987); Ayotte et al. (1988b^{*}); Quazi
- 1735 (1988); Chèvre et al. (1996); Inomata (2002b); Ripley & Beversdorf (2003).
- 1736 • As female (success): Wahiduzzaman (1987); Quazi (1988).
- 1737
- 1738 With *Brassica rapa*
- 1739 • As male (success): Honma & Heeckt (1960); Inomata (1983b^{*}).
- 1740 • As male (failure): Wojciechowski (1985b).
- 1741
- 1742 With *Enarthrocarpus lyratus*
- 1743 • As male (success): Gundimeda et al. (1992).
- 1744
- 1745 With *Erucastrum abyssinicum*
- 1746 • As male (failure): Rao et al. (1996).

- 1747
- 1748 With *Moricandia arvensis*
- 1749 • As male (success): Takahata (1990*).
- 1750 • As female (success): Apel et al. (1984).
- 1751
- 1752 With *Orychophragmus violaceus*
- 1753 • As female (failure): Li & Heneen (1999).
- 1754
- 1755 With *Raphanus sativus*
- 1756 • As male (success): Ellerström & Zagorcheva (1977).
- 1757 • As male (failure): Karpechenko (1924).
- 1758
- 1759 Brassica rapa
- 1760
- 1761 With *Brassica bourgeau*
- 1762 • As female (success): Inomata (1993).
- 1763
- 1764 With *Brassica carinata*
- 1765 • As male (failure): Choudhary et al. (2000a).
- 1766
- 1767 With *Brassica cretica*
- 1768 • As female (success): Inomata (1993*).
- 1769
- 1770 With *Brassica fruticulosa*
- 1771 • As male (failure): Nanda Kumar et al. (1988a, 1988b).
- 1772
- 1773 With *Brassica juncea*
- 1774 • As male (success): Love et al. (1990); Katiyar & Chamola (1995, 1998).
- 1775
- 1776 With *Brassica montana*
- 1777 • As female (failure): Inomata (1993).
- 1778
- 1779 With *Brassica napus*
- 1780 • As male (success): Nwankiti (1970); Mackay (1977); Yamagishi & Takayanagi
- 1781 (1982); Mero & Honma (1984); Quiros et al. (1987); Wahiduzzaman (1987);
- 1782 Chen et al. (1990); Goring et al. (1992); Cheng et al. (1994); J. Brown et al.
- 1783 (1996); Mikkelsen et al. (1996b); Jørgensen et al. (1998); Verma et al. (2000);
- 1784 Lewis et al. (2001).
- 1785 • As female (success): Beversdorf et al. (1980); Anand & Downey (1981); Gowers
- 1786 (1982); Mero & Honma (1984); Pellan-Delourme & Renard (1987);
- 1787 Wahiduzzaman (1987); Leckie et al. (1993); Metz et al. (1997); Hauser et al.
- 1788 (1998b); Halfhill et al. (2001, 2002*, 2004); Hansen et al. (2001); Pertl et al.
- 1789 (2002); Zhu et al. (2004).
- 1790
- 1791 With *Brassica nigra*
- 1792 • As female (success): Olsson (1960a*); Bing et al. (1996a).

- 1793
- 1794 With *Brassica oleracea*
- 1795 • As female (success): Honma & Heeckt (1960); Inomata (1983b*).
- 1796 • As female (failure): Wojciechowski (1985b).
- 1797
- 1798 With *Brassica spinescens*
- 1799 • As female (failure): Inomata (2000).
- 1800
- 1801 With *Brassica tournefortii*
- 1802 • As male (failure): Sikka (1940); Nagpal et al. (1996); Choudhary & Joshi (2001).
- 1803
- 1804 With *Diplotaxis erucooides*
- 1805 • As male (failure): Vyas et al. (1995).
- 1806
- 1807 With *Diplotaxis muralis*
- 1808 • As male (success): Salisbury (1991).
- 1809
- 1810 With *Diplotaxis siettiana*
- 1811 • As male (failure): Nanda Kumar & Shivanna (1993).
- 1812
- 1813 With *Diplotaxis tenuifolia*
- 1814 • As male (success): Salisbury (1991).
- 1815
- 1816 With *Diplotaxis virgata*
- 1817 • As female (failure): Inomata (1999).
- 1818
- 1819 With *Enarthrocarpus lyratus*
- 1820 • As male (success): Gundimeda et al. (1992).
- 1821
- 1822 With *Eruca vesicaria*
- 1823 • As male (success): Agnihotri et al. (1990a).
- 1824 • As female (failure): Robers et al. (1999).
- 1825
- 1826 With *Erucastrum gallicum*
- 1827 • As female (success): Lefol et al. (1997).
- 1828
- 1829 With *Sinapis arvensis*
- 1830 • As female (failure): Inomata (1996).
- 1831
- 1832 *Raphanus sativus*
- 1833
- 1834 With *Brassica napus*
- 1835 • As male (success): Huang et al. (2002).
- 1836
- 1837 With *Brassica nigra*
- 1838 • As male (success): Matsuzawa & Sarashima (1986a).

- 1839
1840 With *Brassica oleracea*
1841 • As female (success): Ellerström & Zagorcheva (1977).
1842 • As female (failure): Karpechenko (1924).
1843
1844 With *Eruca vesicaria*
1845 • As male (success): Matsuzawa & Sarashima (1986b).
1846
1847 Sinapis alba
1848
1849 With *Brassica napus*
1850 • As female (success): Lelivelt et al. (1993a).
1851
1852 With *Brassica nigra*
1853 • As female (failure): Choudhary & Joshi (2000).
1854

1855 **Online Appendix 4: F₂ (experimental) sources**

1856 Papers documenting F₂ production, used for making Figure 6. ‘Success’ means that *any*
1857 trial in the article was successful, while ‘Fail’ means that all trials were unsuccessful.
1858 Articles that successfully produced hybrids, but reported one or more trials where hybrids
1859 were not produced are indicated with an asterisk (*). In lists ‘As male’ or ‘As female’
1860 refer to the role of the crop species in the cross. Note that crosses where both parents are
1861 crops species (*Brassica carinata*, *B. juncea*, *B. napus*, *B. nigra*, *B. oleracea*, *B. rapa*,
1862 *Raphanus sativus* and *Sinapis alba*) are listed twice.

1863

1864 *Brassica carinata*

1865

1866 With *Brassica juncea*

- 1867 • As male (success): U (1935*); Rahman (1976, 1978); Katiyar & Gupta (1987);
1868 Subudhi & Raut (1994b); Katiyar & Chamola (1995).

1869

1870 With *Brassica napus*

- 1871 • As male (success): U (1935); Roy (1980); Wahiduzzaman (1987); Fernandez-
1872 Escobar et al. (1988).
- 1873 • As female (success): Fernandez-Escobar et al. (1988).
- 1874 • As male (failure): Chen & Heneen (1992).

1875

1876 With *Brassica nigra*

- 1877 • As female (success): U (1935).

1878

1879 With *Brassica oleracea*

- 1880 • As male (success): Rahman (2001).
- 1881 • As female (success): U (1935*); Rahman (2001).

1882

1883 With *Brassica rapa*

- 1884 • As female (success): Choudhary et al. (2000a*).

1885

1886 With *Orychophragmus violaceus*

- 1887 • As female (success): Li et al. (1998).

1888

1889 *Brassica juncea*

1890

1891 With *Brassica carinata*

- 1892 • As female (success): U (1935*); Rahman (1976, 1978); Katiyar & Gupta (1987);
1893 Subudhi & Raut (1994b); Katiyar & Chamola (1995).

1894

1895 With *Brassica gravinae*

- 1896 • As female (success): Nanda Kumar et al. (1988b).

1897

1898 With *Brassica maurorum*

- 1899 • As female (success): Bijral et al. (1995).

- 1900
- 1901 With *Brassica napus*
- 1902 • As male (success): Roy (1980); Rao & Raut (1994).
- 1903 • As female (success): Sasaoka (1930); Rahman (1978); Roy (1978, 1980);
- 1904 Wahiduzzaman (1987); Rao & Raut (1994); Subudhi & Raut (1994a).
- 1905 • As male (failure): Morinaga (1929b).
- 1906 • As female (failure): Morinaga (1929b).
- 1907
- 1908 With *Brassica nigra*
- 1909 • As female (success): Morinaga (1931^{*}); Olsson (1960a); Anand et al. (1986).
- 1910
- 1911 With *Brassica oxyrrhina*
- 1912 • As female (success): Bijral & Sharma (1999b).
- 1913
- 1914 With *Brassica rapa*
- 1915 • As male (success): Olsson (1960a).
- 1916 • As female (success): Sikka (1940^{*}); Olsson (1960a); Roy (1980); Anand et al.
- 1917 (1986); Mohapatra & Bajaj (1988); Love et al. (1990^{*}); Choudhary et al. (2002).
- 1918 • As male (failure): Morinaga (1929b).
- 1919 • As female (failure): Morinaga (1929b).
- 1920
- 1921 With *Brassica tournefortii*
- 1922 • As female (success): Goyal et al. (1997).
- 1923
- 1924 With *Diplotaxis eruroides*
- 1925 • As female (failure): Inomata (1998).
- 1926
- 1927 With *Diplotaxis siifolia*
- 1928 • As male (failure): Batra et al. (1990).
- 1929
- 1930 With *Diplotaxis virgata*
- 1931 • As female (success): Inomata (2003^{*}).
- 1932
- 1933 With *Erucastrum virgatum*
- 1934 • As female (failure): Inomata (2001).
- 1935
- 1936 With *Orychophragmus violaceus*
- 1937 • As female (success): Li et al. (1998).
- 1938
- 1939 With *Raphanus raphanistrum*
- 1940 • As female (failure): Kamala (1983).
- 1941
- 1942 With *Sinapis pubescens*
- 1943 • As female (success): Inomata (1991^{*}).
- 1944

- 1945 Brassica napus
 1946
 1947 With Brassica bourgeau
 1948 • As female (success): Inomata (2002b*^{*}).
 1949
 1950 With Brassica carinata
 1951 • As male (success): Fernandez-Escobar et al. (1988).
 1952 • As female (success): U (1935); Roy (1980); Wahiduzzaman (1987); Fernandez-
 1953 Escobar et al. (1988).
 1954 • As female (failure): Chen & Heneen (1992).
 1955
 1956 With Brassica cretica
 1957 • As female (success): Inomata (2002b).
 1958
 1959 With Brassica gravinae
 1960 • As female (success): Nanda Kumar et al. (1988b).
 1961
 1962 With Brassica juncea
 1963 • As male (success): Sasaoka (1930); Rahman (1978); Roy (1978, 1980);
 1964 Wahiduzzaman (1987); Rao & Raut (1994); Subudhi & Raut (1994a).
 1965 • As female (success): Roy (1980); Rao & Raut (1994).
 1966 • As male (failure): Morinaga (1929b).
 1967 • As female (failure): Morinaga (1929b).
 1968
 1969 With Brassica maurorum
 1970 • As female (success): Bijral et al. (1995).
 1971
 1972 With Brassica montana
 1973 • As female (success): Inomata (2002b).
 1974
 1975 With Brassica oleracea
 1976 • As male (success): Chiang et al. (1977); Quazi (1988).
 1977 • As female (success): U (1935); Honma & Summers (1976); Chiang et al. (1977);
 1978 Wahiduzzaman (1987); Ayotte et al. (1988a); Quazi (1988); Inomata (2002b).
 1979
 1980 With Brassica rapa
 1981 • As male (success): Lammerink (1970); Mero & Honma (1984); Brown & Brown
 1982 (1996*^{*}); Hauser et al. (1998b).
 1983 • As female (success): Sasaoka (1930); Nwankiti (1970); McNaughton (1973b);
 1984 Rahman (1978); Mero & Honma (1984); Wahiduzzaman (1987); Chen et al.
 1985 (1990); Goring et al. (1992); Cheng et al. (1994); J. Brown et al. (1996); Wu &
 1986 Shi (1997); Jørgensen et al. (1998).
 1987 • As male (failure): Leckie et al. (1993); Metz et al. (1997).
 1988
 1989 With Diplotaxis erucooides
 1990 • As male (success): Vyas et al. (1995).

- 1991
- 1992 With *Diplotaxis harra*
- 1993 • As female (success): Inomata (2005).
- 1994
- 1995 With *Diplotaxis virgata*
- 1996 • As female (failure): Inomata (2002a).
- 1997
- 1998 With *Eruca vesicaria*
- 1999 • As female (success): Bijral & Sharma (1996a).
- 2000
- 2001 With *Erucastrum gallicum*
- 2002 • As female (failure): Lefol et al. (1997).
- 2003
- 2004 With *Moricandia arvensis*
- 2005 • As male (success): Takahata et al. (1993*).
- 2006
- 2007 With *Orychophragmus violaceus*
- 2008 • As female (success): Li et al. (1995).
- 2009
- 2010 With *Raphanus raphanistrum*
- 2011 • As female (success): Rieger et al. (2001).
- 2012 • As female (failure): Kamala (1983); Lefol et al. (1997).
- 2013
- 2014 With *Raphanus sativus*
- 2015 • As female (failure): Luo et al. (2000b).
- 2016
- 2017 With *Rorippa islandica*
- 2018 • As female (success): Bijral & Sharma (1995).
- 2019
- 2020 With *Sinapis arvensis*
- 2021 • As female (success): Inomata (1988, 1997); Bing et al. (1995*).
- 2022 • As male (failure): Moyes et al. (2002).
- 2023 • As female (failure): Moyes et al. (2002).
- 2024
- 2025 With *Sinapis pubescens*
- 2026 • As female (success): Inomata (1991*, 1994*).
- 2027
- 2028 Brassica nigra
- 2029
- 2030 With *Brassica carinata*
- 2031 • As male (success): U (1935).
- 2032
- 2033 With *Brassica juncea*
- 2034 • As male (success): Morinaga (1931*); Olsson (1960a); Anand et al. (1986).

- 2035
- 2036 With *Brassica oleracea*
- 2037 • As female (success): Frandsen (1947).
- 2038 • As female (failure): Sarla & Raut (1988).
- 2039
- 2040 With *Brassica rapa*
- 2041 • As male (success): Ramanujam & Srinivasachar (1943); Olsson (1960a); Prakash
- 2042 (1973a); Bing et al. (1996a).
- 2043 • As female (success): Matsuzawa et al. (1987).
- 2044
- 2045 With *Brassica tournefortii*
- 2046 • As male (failure): Nagpal et al. (1996).
- 2047
- 2048 With *Diplotaxis erucooides*
- 2049 • As male (failure): Quiros et al. (1988).
- 2050
- 2051 With *Orychophragmus violaceus*
- 2052 • As female (success): Li & Heneen (1999).
- 2053
- 2054 With *Raphanus sativus*
- 2055 • As female (failure): Matsuzawa & Sarashima (1986a).
- 2056
- 2057 With *Sinapis alba*
- 2058 • As male (success): Choudhary & Joshi (2000*).
- 2059
- 2060 With *Sinapis arvensis*
- 2061 • As female (failure): Banga & Labana (1991).
- 2062
- 2063 Brassica oleracea
- 2064
- 2065 With *Brassica carinata*
- 2066 • As male (success): U (1935*); Rahman (2001).
- 2067 • As female (success): Rahman (2001).
- 2068
- 2069 With *Brassica cretica*
- 2070 • As male (success): von Bothmer et al. (1995).
- 2071
- 2072 With *Brassica incana*
- 2073 • As male (success): von Bothmer et al. (1995).
- 2074
- 2075 With *Brassica insularis*
- 2076 • As male (success): von Bothmer et al. (1995).
- 2077 • As female (success): Mithen & Lewis (1988).
- 2078
- 2079 With *Brassica macrocarpa*
- 2080 • As male (success): von Bothmer et al. (1995).

- 2081
- 2082 With *Brassica montana*
- 2083 • As male (success): von Bothmer et al. (1995).
- 2084
- 2085 With *Brassica napus*
- 2086 • As male (success): U (1935); Honma & Summers (1976); Chiang et al. (1977);
- 2087 Wahiduzzaman (1987); Ayotte et al. (1988a); Quazi (1988); Inomata (2002b).
- 2088 • As female (success): Chiang et al. (1977); Quazi (1988).
- 2089
- 2090 With *Brassica nigra*
- 2091 • As male (success): Frandsen (1947).
- 2092 • As male (failure): Sarla & Raut (1988).
- 2093
- 2094 With *Brassica rapa*
- 2095 • As male (success): U (1935^{*}); Frandsen (1947); Honma & Heeckt (1960); Olsson
- 2096 (1960b); Inomata (1983b, 1984^{*}); Prakash & Raut (1983); Wojciechowski
- 2097 (1985b^{*}).
- 2098 • As female (success): Olsson (1960b); Wojciechowski (1985b^{*}).
- 2099
- 2100 With *Brassica rupestris*
- 2101 • As male (success): von Bothmer et al. (1995).
- 2102
- 2103 With *Brassica villosa*
- 2104 • As male (success): von Bothmer et al. (1995).
- 2105
- 2106 With *Eruca vesicaria*
- 2107 • As male (failure): U et al. (1937).
- 2108
- 2109 With *Hirschfeldia incana*
- 2110 • As female (failure): Quiros et al. (1988).
- 2111
- 2112 With *Moricandia arvensis*
- 2113 • As male (success): Takahata (1990^{*}).
- 2114 • As female (failure): Apel et al. (1984).
- 2115
- 2116 With *Orychophragmus violaceus*
- 2117 • As female (failure): Li & Heneen (1999).
- 2118
- 2119 With *Raphanus sativus*
- 2120 • As male (success): Richharia (1937); McNaughton (1973a^{*}); Ellerström (1978);
- 2121 McCollum (1979); Sarashima & Matsuzawa (1979).
- 2122 • As male (failure): Karpechenko (1924).
- 2123
- 2124 With *Sinapis alba*
- 2125 • As male (failure): U et al. (1937).
- 2126

- 2127 Brassica rapa
2128
2129 With Brassica bourgeauii
2130 • As female (success): Inomata (1993*^{*}).
2131
2132 With Brassica carinata
2133 • As male (success): Choudhary et al. (2000a*^{*}).
2134
2135 With Brassica cretica
2136 • As female (success): Inomata (1993*^{*}).
2137
2138 With Brassica fruticulosa
2139 • As male (failure): Chandra et al. (2004b).
2140
2141 With Brassica juncea
2142 • As male (success): Sikka (1940*^{*}); Olsson (1960a); Roy (1980); Anand et al.
2143 (1986); Mohapatra & Bajaj (1988); Love et al. (1990*^{*}); Choudhary et al. (2002).
2144 • As female (success): Olsson (1960a).
2145 • As male (failure): Morinaga (1929b).
2146 • As female (failure): Morinaga (1929b).
2147
2148 With Brassica montana
2149 • As female (success): Inomata (1993*^{*}).
2150
2151 With Brassica napus
2152 • As male (success): Sasaoka (1930); Nwankiti (1970); McNaughton (1973b);
2153 Rahman (1978); Mero & Honma (1984); Wahiduzzaman (1987); Chen et al.
2154 (1990); Goring et al. (1992); Cheng et al. (1994); J. Brown et al. (1996); Wu &
2155 Shi (1997); Jørgensen et al. (1998).
2156 • As female (success): Lammerink (1970); Mero & Honma (1984); Brown &
2157 Brown (1996*^{*}); Hauser et al. (1998b).
2158 • As female (failure): Leckie et al. (1993); Metz et al. (1997).
2159
2160 With Brassica nigra
2161 • As male (success): Matsuzawa et al. (1987).
2162 • As female (success): Ramanujam & Srinivasachar (1943); Olsson (1960a);
2163 Prakash (1973a); Bing et al. (1996a).
2164
2165 With Brassica oleracea
2166 • As male (success): Olsson (1960b); Wojciechowski (1985b*^{*}).
2167 • As female (success): U (1935*^{*}); Frandsen (1947); Honma & Heeckt (1960);
2168 Olsson (1960b); Inomata (1983b, 1984*^{*}); Prakash & Raut (1983); Wojciechowski
2169 (1985b*^{*}).
2170
2171 With Brassica tournefortii
2172 • As male (failure): Nagpal et al. (1996); Choudhary & Joshi (2001).

- 2173
- 2174 With *Diplotaxis virgata*
- 2175 • As female (failure): Inomata (1999).
- 2176
- 2177 With *Eruca vesicaria*
- 2178 • As male (success): Agnihotri et al. (1990a); Matsuzawa et al. (1999).
- 2179
- 2180 With *Erucastrum canariense*
- 2181 • As male (failure): Bhaskar et al. (2002).
- 2182
- 2183 With *Erucastrum gallicum*
- 2184 • As female (success): Lefol et al. (1997).
- 2185
- 2186 With *Orychophragmus violaceus*
- 2187 • As female (success): Wu & Jiang (1996); Li & Heneen (1999).
- 2188
- 2189 With *Raphanus sativus*
- 2190 • As female (success): Wu & Luo (2000).
- 2191
- 2192 With *Sinapis arvensis*
- 2193 • As female (failure): Inomata (1996).
- 2194
- 2195 *Raphanus sativus*
- 2196
- 2197 With *Brassica napus*
- 2198 • As male (failure): Luo et al. (2000b).
- 2199
- 2200 With *Brassica nigra*
- 2201 • As male (failure): Matsuzawa & Sarashima (1986a).
- 2202
- 2203 With *Brassica oleracea*
- 2204 • As female (success): Richharia (1937); McNaughton (1973a*); Ellerström (1978);
- 2205 McCollum (1979); Sarashima & Matsuzawa (1979).
- 2206 • As female (failure): Karpechenko (1924).
- 2207
- 2208 With *Brassica rapa*
- 2209 • As male (success): Wu & Luo (2000).
- 2210
- 2211 With *Brassica tournefortii*
- 2212 • As male (failure): Choudhary et al. (2000b).
- 2213
- 2214 *Sinapis alba*
- 2215
- 2216 With *Brassica nigra*
- 2217 • As female (success): Choudhary & Joshi (2000*).

2218

2219 With *Brassica oleracea*

2220 • As female (failure): U et al. (1937).

2221

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