

Supplemental Information for

Multiple shoot induction in zygotic embryos: A strategy for acceleration of banana breeding

Backiyarani S†*, Uma S†, Saranya S, Durai P, Eugin Perianayagaraj S, Selvarajan V Saraswathi M.S. and Karthic R
ICAR-National Research Centre for Banana, Thogamalai Road, Thayanur Post,
Tiruchirappalli -620 102, Tamil Nadu, India.

***Corresponding Author: E- mail:backiyarani@gmail.com**
ORCID ID: <https://orcid.org/0000-0003-4122-5970>

This Supplemental Information includes information on three tables.

Supplementary Table S1. Parental details of the seeds obtained from controlled and open pollination.

Accession Name	Accession number	Status	Male/Female parent	Seed status	Origin	Genome	IC number
Bankela	0453	Germplasm	Female	Parthenocarpic	India	ABB	IC250906
Boothibale	0584	Germplasm	Female	Parthenocarpic	India	ABB	IC251037
Calcutta 4	0654	Wild	Female/Male	Seeded	India	AA	IC497300
Chinia	0087	Germplasm	Female	Parthenocarpic	India	ABB	IC250450
Cuba	0126	Germplasm	Female	Parthenocarpic	India	ABB	IC250579
Cultivar Rose	0638	Germplasm	Female/Male	Parthenocarpic	Indonesia	AA	IC468348
Ennabernian	0103	Germplasm	Female	Parthenocarpic	India	ABB	IC250556
Karpuravalli	0291	Germplasm	Female	Parthenocarpic	India	ABB	IC250744
Kothia	0096	Germplasm	Female	Parthenocarpic	India	ABB	IC250549
Matti	0182	Germplasm	Female	Parthenocarpic	India	AA	IC250635
Microcarpa	0824	Wild	Female	Parthenocarpic	Malaysia	AA	ITC 253
Nendran	0296	Germplasm	Female	Parthenocarpic	India	AAB	IC250749
NOP 46	-	Breeding line	Female	Parthenocarpic	India	AAB	-
NPL33	-	Breeding line	Female	Parthenocarpic	India	AAB	-
Pisang Jajee	0687	wild	Male	Seeded	Malaysia	AA	ITC 694
Pisang Lilin	0195	Germplasm	Male	Parthenocarpic	India	AA	IC250648
Poovan	0294	Germplasm	Female	Parthenocarpic	India	AAB	IC250747
Saba	0636	Germplasm	Female	Parthenocarpic	-	ABB	ITC 1138
Veenut Mannan	0251	Germplasm	Female	Parthenocarpic	India	ABB	IC250704

Supplementary Table S2. Nature of various hybrid seeds of controlled and open pollinated accessions

Accessions with controlled /open pollination	Number of				No.of floating seeds		
	Seeds	Sunken seeds	Floating	Embryos in sunken seeds	empty	endosperm alone	mal formed embryo
Chinia x Pisang Jajee	100	38	62	25	48	12	2
Karpuravalli x Calcutta 4	50	18	32	6	20	8	4
Karpuravalli x Cultivar Rose	68	28	40	9	22	13	5
Karpuravalli x Pisang Jajee	64	42	22	7	18	4	0
Kothia x Calcutta 4	50	40	10	12	6	2	2
Saba x Calcutta 4	96	44	52	13	35	13	4
Saba x Pisang Lilin	104	60	44	14	28	12	4
Nendran x Pisang Jajee	36	18	18	6	9	6	3
Nendran x Calcutta 4	40	8	32	3	3	21	8
Nendran x Cultivar Rose	30	8	22	4	5	9	8
Nendran x Pisang Lilin	34	18	16	4	14	2	0
NOP 46 x Calcutta 4	40	16	24	5	9	8	7
NPL33 X Calcutta 4	44	20	24	6	3	20	1
NPL33 X Pisang Lilin	42	10	32	2	12	20	0
Poovan x Calcutta 4	88	20	68	5	8	41	19
Poovan x Pisang Lilin	90	50	40	5	15	23	2
Cultivar Rose x Calcutta 4	30	18	12	7	0	10	2
Matti x Cultivar Rose	100	20	80	6	11	68	1
Open Pollinated							
Bankela	40	10	30	3	12	10	8
Boothibale	100	84	16	8	8	8	0

Chinia 0087	100	86	14	10	9	3	2
Saba	100	64	36	27	24	10	2
Calcutta 4	100	60	40	20	32	8	0
Microcarpa	100	80	20	24	10	3	7
Cuba	72	40	32	5	28	3	1
Veenut Mannan	34	16	18	9	15	1	2
Ennabernian	80	56	24	5	18	0	6

Supplementary Table S3. Details of *in silico* polymorphic SSR primers used for genetic fidelity test

S.No	Primer Name	Forward sequence	Reverse sequence	Annealing temperature
1	NRSIP10	GTCGTTTCCTATTTCGACAG	GGTACAAGACGAGGGATTC	56
2	NRSIP11	CTATGATGACCCCTTCCTAAG	ATTGCGACAGAGAGATGAGT	57
3	NRSIP12	ATGTAGAACATTTGGGGAAGT	TTGAAATAGCTTTTGGAAGT	53
4	NRSIP14	CCGTGCCTGGTTTTTAAC	ATGAATCGTACTTGGGGTTAT	56
5	NRSIP15	TCAGGAAGAATGTGAGCTATT	GGTTTCTCCATACACAGACAG	56
6	NRSIP16	CCTCACCAGCATTTATTGTAT	GATGAACATACATCCTCTCCA	55
7	NRSIP17	GTAGATCTGAAGCATCTGTGG	AACCAATAAGTTTGGGAAATC	55
8	NRSIP18	CTGTCTGCTGCTTATTCTTTT	TTCTCATATCTCTCGATGACG	56
9	NRSIP19	GTTGATGAAGACTTGACAGA	TTTGCTCTTCTTCCTTCTTCT	54
10	NRSIP20	ATTTTGACTGCCTCTTTTCTT	ATCAACAGCAGAGCACAAC	56
11	NRSIP21	ATCTAAGCATTAGGGGATGAG	ATCCACATCTTAGCACACAAC	56
12	NRSIP22	CCTAATTAAGCCTTCCGTTT	TTGAGGGCATTATAGAGAGTG	58
13	NRSIP23	GGTGTATGTTTTTGACCTCT	CTTTATGCCATCAAAACAAAG	58
14	NRSIP24	ATGAAAAGATGTTGTGGGATT	AGTGACAGAATACATGCCAAC	58
15	NRSIP25	GTGACGGTTTTCTACAGATTG	AAAAATAGGGACTTCGATGAG	56
16	NRSIP26	CCTTCCTAAATCCTTCATTGT	ACTAATGGTGCTCATGACAGT	56
17	NRSIP27	ATGGAGATCGAGGTTGAGT	TCTCTCTCTTCTTCTCCGTTT	54
18	NRSIP28	TTTtaggaaggagaggaagag	TCTGAAAACCTTCATTCAGACTT	58
19	NRSIP29	GGAAAGGGAATTCCAAATAG	GAGCGTATTTAGTACAGCACAA	50
20	NRSIP30	GTATGTGATGGAAGGCTAATG	TCCTTTAATGATTGATGATGC	56