**De novo transcriptome assembly and development of EST-SSR markers for Pterocarpus santalinus L. f. (Red sanders), a threatened and endemic timber tree of India**

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**Supplementary File 1**

**Supplementary document 1a:** Chromosome count database of the genus *Pterocarpus* (Rice et al. 2015; http://ccdb.tau.ac.il/search/Pterocarpus/) (\* present study)

|  |  |  |  |
| --- | --- | --- | --- |
| **Species Name** | **Gametophytic** | **Sporophytic** | **Parsed\_n** |
| *Pterocarpus acerifolius* Willd. | 22 | - | 22 |
| *Pterocarpus echinatus* Pers. | 11 | - | 11 |
| *Pterocarpus echinatus* Pers. | 22 | - | 22 |
| *Pterocarpus indicus* Herb. Madr. ex Wallich | 22 | - | 22 |
| *Pterocarpus indicus* Willd. | 10 | 20 | 10 |
| *Pterocarpus indicus* Willd. | - | 44 | 22 |
| *Pterocarpus macrocarpus* Kurz. | - | 34 | 17 |
| *Pterocarpus marsupium* Roxb. | - | 22 | 11 |
| *Pterocarpus marsupium* Roxb. | - | 44 | 22 |
| *Pterocarpus rohrii* Vahl. | 10 | - | 10 |
| *Pterocarpus rotundifolius* (Sond.) Druce | - | 24 | 12 |
| *Pterocarpus santalinoides* DC. | - | 22 | 11 |
| *Pterocarpus santalinus* L. f. (Present Study)\* | - | 20 | 10 |

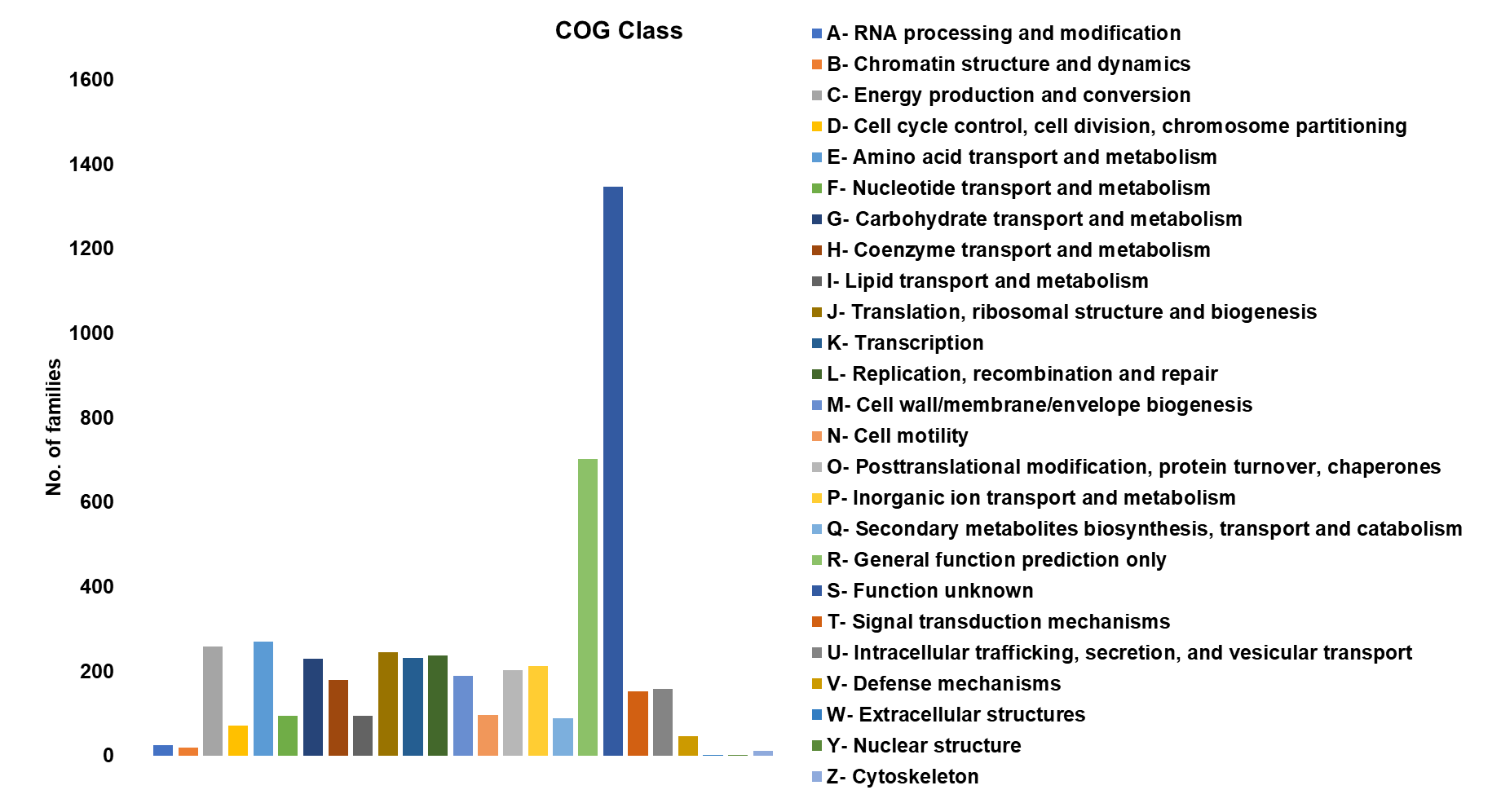
References

Rice A, Glick L, Abadi S, Einhorn M., Kopelman NM., Salman-Minkov A, Mayzel J, ChayO and MayroseI.(2014). The Chromosome Counts Database (CCDB) – a community resource of plant chromosome numbers. New Phytol.https://doi: 10.1111/nph.1319

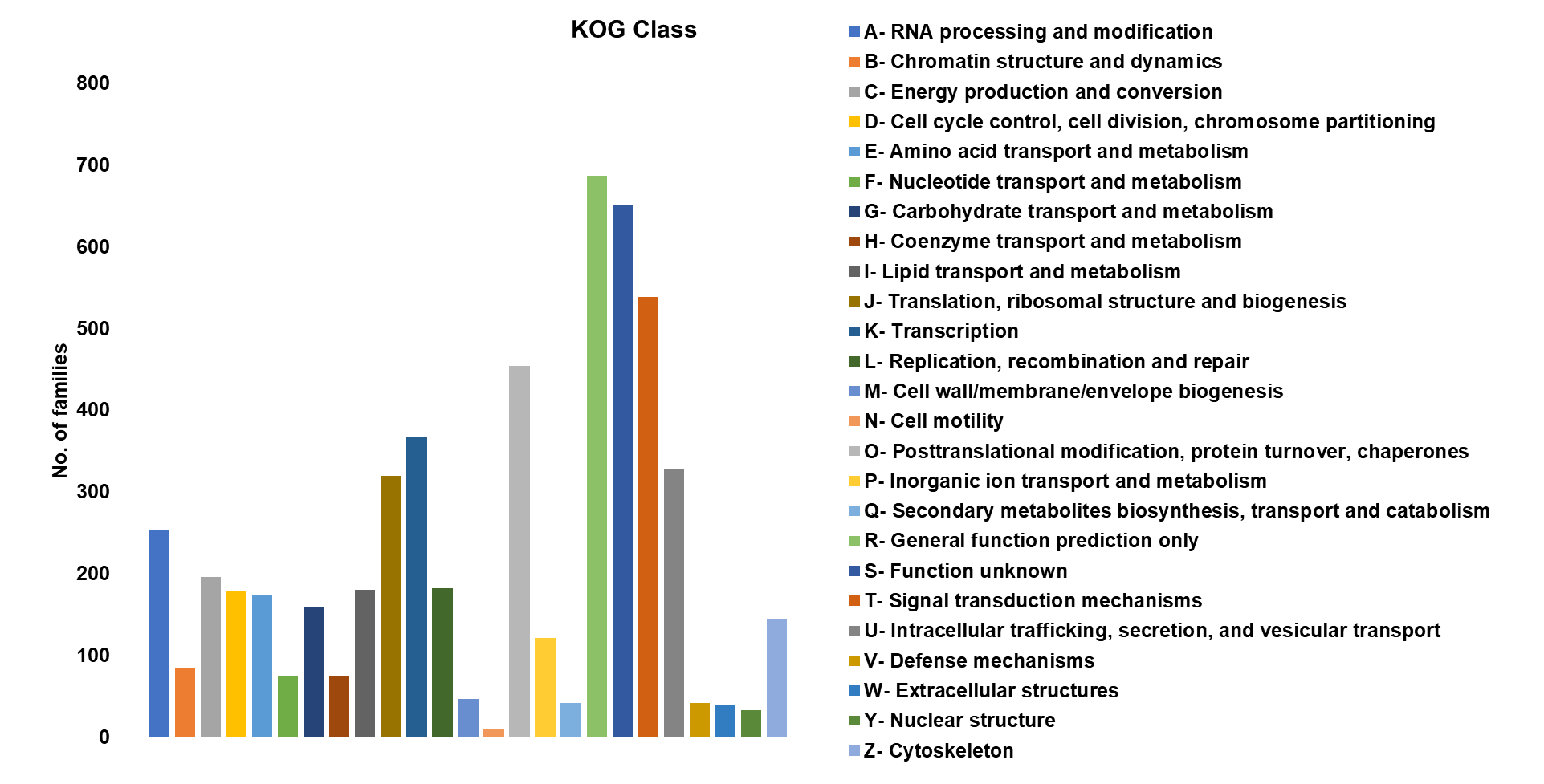
**Supplementary File 1b:** Top 20 species hit from the annotation against SwissProt database for a de novo red sanders transcriptome assembly.

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Organism name** | **Family name** | **Number of hits** |
| 1 | *Medicagotruncatula* | Fabaceae | 19590 |
| 2 | *Actinidiachinensis var. chinensis* | Actinidiaceae | 2398 |
| 3 | *Cinnamomummicranthum f. kanehirae* | Lauraceae | 490 |
| 4 | *Aegilopstauschii subsp. strangulata* | Poaceae | 293 |
| 5 | *Arabisalpina* | Brassicaceae | 245 |
| 6 | *Musa balbisiana* | Musaceae | 185 |
| 7 | *Musa acuminata subsp. malaccensis* | Musaceae | 183 |
| 8 | *Amborellatrichopoda* | Amborellaceae | 159 |
| 9 | *Glycine max* | Fabaceae | 96 |
| 10 | *Arabidopsis thaliana* | Brassicaceae | 58 |
| 11 | *Arachishypogaea* | Fabaceae | 43 |
| 12 | *Pisumsativum* | Fabaceae | 22 |
| 13 | *Cicer arietinum* | Fabaceae | 20 |
| 14 | *Spatholobussuberectus* | Fabaceae | 15 |
| 15 | *Lotus japonicus* | Fabaceae | 15 |
| 16 | *Nicotianatabacum* | Solanaceae | 15 |
| 17 | *Ammopiptanthusmongolicus* | Fabaceae | 14 |
| 18 | *Medicagosativa* | Fabaceae | 12 |
| 19 | *Cajanuscajan* | Fabaceae | 12 |
| 20 | *Vignaradiata var. radiata* | Fabaceae | 12 |

**Supplementary File 1c:** Functional annotation of assembled sequences based on COG classification of unigenes in red sanders.



**Supplementary File 1d:** Functional annotation of assembled sequences based on KOG classification of unigenes in red sanders.



**Supplementary File 1e:** Information of 105 *PsbHLH and TtbHLH* genes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S. No | bHLH TF ID | Ath Hit | Entry | Gene | Group | Unigene ID |
| 1 | PsbHLH10117\_c0\_g1.p1 | AT5G54680 | Q9FH37 | ILR3 | IVc | TRINITY\_DN10117\_c0\_g1 |
| 2 | PsbHLH10117\_c0\_g2.p1 | AT5G54680 | Q9FH38 | ILR3 | IVc | TRINITY\_DN10117\_c0\_g2 |
| 3 | PsbHLH10404\_c0\_g4.p1 | AT3G06590 | Q9C8Z9 | BHLH148 | IIIe | TRINITY\_DN10404\_c0\_g4 |
| 4 | PsbHLH11005\_c0\_g1.p1 | AT4G16430 | O23487 | BHLH3 | IIId | TRINITY\_DN11005\_c0\_g1 |
| 5 | PsbHLH11005\_c0\_g3.p1 | AT4G16430 | O23488 | BHLH3 | IIId | TRINITY\_DN11005\_c0\_g3 |
| 6 | PsbHLH11005\_c0\_g4.p1 | AT4G16430 | O23489 | BHLH3 | IIId | TRINITY\_DN11005\_c0\_g4 |
| 7 | PsbHLH11005\_c0\_g5.p1 | AT4G16430 | O23490 | BHLH3 | IIId | TRINITY\_DN11005\_c0\_g5 |
| 8 | PsbHLH12112\_c0\_g1.p1 | AT1G59640 | Q0JXE7 | BPE | XII | TRINITY\_DN12112\_c0\_g1 |
| 9 | PsbHLH12587\_c0\_g1.p1 | AT1G05805 | Q8H102 | BHLH128 | IX | TRINITY\_DN12587\_c0\_g1 |
| 10 | PsbHLH12587\_c0\_g2.p1 | AT1G05805 | Q8H103 | BHLH128 | IX | TRINITY\_DN12587\_c0\_g2 |
| 11 | PsbHLH12593\_c0\_g1.p1 | AT1G10120 | Q6NKN9 | BHLH74 | XII | TRINITY\_DN12593\_c0\_g1 |
| 12 | PsbHLH13211\_c0\_g1.p1 | AT4G29100 | Q8S3D2 | BHLH68 | X | TRINITY\_DN13211\_c0\_g1 |
| 13 | PsbHLH13211\_c0\_g2.p1 | AT4G29100 | Q8S3D2 | BHLH68 | X | TRINITY\_DN13211\_c0\_g2 |
| 14 | PsbHLH14347\_c0\_g1.p1 | AT3G59060 | Q84LH8 | PIF5 | VIIa | TRINITY\_DN14347\_c0\_g1 |
| 15 | PsbHLH1557\_c0\_g1.p1 | AT1G05710 | Q7XJU2 | BHLH153 | IIIe | TRINITY\_DN1557\_c0\_g1 |
| 16 | PsbHLH1557\_c0\_g2.p1 | AT1G05710 | Q7XJU3 | BHLH153 | IIIe | TRINITY\_DN1557\_c0\_g2 |
| 17 | PsbHLH16305\_c0\_g1.p1 | AT1G32640 | Q39204 | MYC2 | IIIe | TRINITY\_DN16305\_c0\_g1 |
| 18 | PsbHLH16321\_c0\_g1.p1 | AT1G32640 | Q39205 | MYC2 | IIIe | TRINITY\_DN16321\_c0\_g1 |
| 19 | PsbHLH1792\_c0\_g1.p1 | AT2G42280 | Q66GR3 | BHLH130 | IX | TRINITY\_DN1792\_c0\_g1 |
| 20 | PsbHLH1792\_c0\_g2.p1 | AT2G42280 | Q66GR4 | BHLH130 | IX | TRINITY\_DN1792\_c0\_g2 |
| 21 | PsbHLH2177\_c0\_g3.p1 | AT3G07340 | Q9SRT2 | BHLH62 | XII | TRINITY\_DN2177\_c0\_g3 |
| 22 | PsbHLH237\_c2\_g1.p1 | AT4G34530 | Q8GY61 | BHLH63 | XII | TRINITY\_DN237\_c2\_g1 |
| 23 | PsbHLH237\_c2\_g2.p1 | AT4G34530 | Q8GY62 | BHLH63 | XII | TRINITY\_DN237\_c2\_g2 |
| 24 | PsbHLH2825\_c0\_g1.p1 | AT4G00050 | Q8GZ38 | UNE10 | VIIb | TRINITY\_DN2825\_c0\_g1 |
| 25 | PsbHLH2825\_c0\_g2.p1 | AT4G00050 | Q8GZ39 | UNE10 | VIIb | TRINITY\_DN2825\_c0\_g2 |
| 26 | PsbHLH2933\_c1\_g1.p1 | AT3G61950 | Q700E4 | BHLH67 | Ia | TRINITY\_DN2933\_c1\_g1 |
| 27 | PsbHLH3104\_c0\_g2.p1 | AT3G59060 | Q84LH8 | PIF5 | VIIa | TRINITY\_DN3104\_c0\_g2 |
| 28 | PsbHLH3214\_c0\_g3.p1 | AT1G32640 | Q39204 | MYC2 | IIIe | TRINITY\_DN3214\_c0\_g3 |
| 29 | PsbHLH3214\_c0\_g4.p1 | AT1G32640 | Q39204 | MYC2 | IIIe | TRINITY\_DN3214\_c0\_g4 |
| 30 | PsbHLH3628\_c0\_g1.p1 | AT2G40200 | Q9XEF0 | BHLH51 | IVc | TRINITY\_DN3628\_c0\_g1 |
| 31 | PsbHLH3628\_c0\_g2.p1 | AT2G40200 | Q9XEF1 | BHLH51 | IVc | TRINITY\_DN3628\_c0\_g2 |
| 32 | PsbHLH4222\_c0\_g2.p1 | AT5G57150 | Q2HIV9 | BHLH35 | IIIc | TRINITY\_DN4222\_c0\_g2 |
| 33 | PsbHLH4386\_c0\_g2.p1 | AT5G08130 | Q9LEZ3 | BIM1 | Va | TRINITY\_DN4386\_c0\_g2 |
| 34 | PsbHLH4386\_c0\_g4.p1 | AT5G08130 | Q9LEZ4 | BIM1 | Va | TRINITY\_DN4386\_c0\_g4 |
| 35 | PsbHLH4826\_c0\_g1.p1 | AT1G12860 | Q9LPW3 | SCRM2 | IIIb | TRINITY\_DN4826\_c0\_g1 |
| 36 | PsbHLH483\_c0\_g1.p1 | AT5G54680 | Q9FH37 | ILR3 | IVc | TRINITY\_DN483\_c0\_g1 |
| 37 | PsbHLH483\_c0\_g2.p1 | AT5G54680 | Q9FH38 | ILR3 | IVc | TRINITY\_DN483\_c0\_g2 |
| 38 | PsbHLH483\_c0\_g3.p1 | AT5G54680 | Q9FH39 | ILR3 | IVc | TRINITY\_DN483\_c0\_g3 |
| 39 | PsbHLH483\_c0\_g4.p1 | AT5G54680 | Q9FH40 | ILR3 | IVc | TRINITY\_DN483\_c0\_g4 |
| 40 | PsbHLH5259\_c0\_g2.p1 | AT1G10120 | Q6NKN9 | BHLH74 | XII | TRINITY\_DN5259\_c0\_g2 |
| 41 | PsbHLH5348\_c0\_g3.p1 | AT2G42280 | Q66GR3 | BHLH130 | IX | TRINITY\_DN5348\_c0\_g3 |
| 42 | PsbHLH6367\_c0\_g2.p1 | AT1G59640 | Q0JXE7 | BPE | XII | TRINITY\_DN6367\_c0\_g2 |
| 43 | PsbHLH6676\_c0\_g8.p1 | AT3G26744 | Q9LSE2 | SCRM | IIIb | TRINITY\_DN6676\_c0\_g8 |
| 44 | PsbHLH7516\_c0\_g4.p1 | AT1G72210 | Q9C7T4 | BHLH96 | Ia | TRINITY\_DN7516\_c0\_g4 |
| 45 | PsbHLH7963\_c0\_g1.p1 | AT4G14410 | Q8L467 | BHLH104 | IV c | TRINITY\_DN7963\_c0\_g1 |
| 46 | PsbHLH7963\_c0\_g3.p1 | AT4G14410 | Q8L468 | BHLH104 | IV c | TRINITY\_DN7963\_c0\_g3 |
| 47 | PsbHLH8234\_c0\_g1.p1 | AT1G68810 | Q9S7Y1 | BHLH30 | IVc | TRINITY\_DN8234\_c0\_g1 |
| 48 | PsbHLH8745\_c0\_g1.p1 | AT3G57800 | Q3EAI1 | BHLH60 | XII | TRINITY\_DN8745\_c0\_g1 |
| 49 | PsbHLH8745\_c0\_g2.p1 | AT3G57800 | Q3EAI2 | BHLH60 | XII | TRINITY\_DN8745\_c0\_g2 |
| 50 | PsbHLH8745\_c0\_g5.p1 | AT3G57800 | Q3EAI3 | BHLH60 | XII | TRINITY\_DN8745\_c0\_g5 |
| 51 | PsbHLH9937\_c0\_g1.p1 | AT4G02590 | O22768 | UNE12 | XII | TRINITY\_DN9937\_c0\_g1 |
| 52 | PsbHLH9937\_c0\_g2.p1 | AT4G02590 | O22769 | UNE12 | XII | TRINITY\_DN9937\_c0\_g2 |
| 53 | TtbHLH11340\_c0\_seq1.p1 | AT4G00480 | Q8W2F1 | BHLH12 | IIIf | comp11340\_c0\_seq1 |
| 54 | TtbHLH12054\_c0\_seq1.p1 | AT4G02590 | O22768 | UNE12 | IIIe | comp12054\_c0\_seq1 |
| 55 | TtbHLH12997\_c0\_seq1.p1 | AT4G25400 | Q9STJ7 | BHLH118 | Ib | comp12997\_c0\_seq1 |
| 56 | TtbHLH12997\_c0\_seq2.p1 | AT4G25410 | Q9STJ6 | BHLH126 | Ib | comp12997\_c0\_seq2 |
| 57 | TtbHLH13124\_c1\_seq1.p1 | AT5G67060 | Q9FHA7 | HEC1 | VIIIb | comp13124\_c1\_seq1 |
| 58 | TtbHLH13124\_c1\_seq2.p1 | AT5G67060 | Q9FHA8 | HEC1 | VIIIb | comp13124\_c1\_seq2 |
| 59 | TtbHLH13245\_c1\_seq1.p1 | AT2G20180 | Q8GZM7 | PIF1 | VIIa | comp13245\_c1\_seq1 |
| 60 | TtbHLH13245\_c1\_seq2.p1 | AT2G20180 | Q8GZM8 | PIF1 | VIIa | comp13245\_c1\_seq2 |
| 61 | TtbHLH13304\_c0\_seq1.p1 | AT4G36930 | Q9FUA4 | SPT | VIIb | comp13304\_c0\_seq1 |
| 62 | TtbHLH13377\_c0\_seq1.p1 | AT3G21330 | Q8S3D2 | BHLH87 | VIIIb | comp13377\_c0\_seq1 |
| 63 | TtbHLH13547\_c0\_seq1.p1 | AT4G14410 | Q8L467 | BHLH104 | IV c | comp13547\_c0\_seq1 |
| 64 | TtbHLH13547\_c0\_seq2.p1 | AT3G23210 | Q9LTC7 | BHLH34 | Ivc | comp13547\_c0\_seq2 |
| 65 | TtbHLH16459\_c0\_seq1.p1 | AT4G34530 | Q8GY61 | BHLH63 | XII | comp16459\_c0\_seq1 |
| 66 | TtbHLH16952\_c0\_seq1.p1 | AT1G59640 | Q0JXE7 | BPE | XII | comp16952\_c0\_seq1 |
| 67 | TtbHLH17906\_c1\_seq1.p1 | AT1G68920 | Q9CAA9 | BHLH49 | XII | comp17906\_c1\_seq1 |
| 68 | TtbHLH18066\_c0\_seq1.p1 | AT2G22770 | Q8S3F1 | NAI1 | IVa | comp18066\_c0\_seq1 |
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| 73 | TtbHLH19488\_c0\_seq2.p1 | AT4G29930 | Q700E3 | BHLH27 | IIIa | comp19488\_c0\_seq2 |
| 74 | TtbHLH19881\_c1\_seq1.p1 | AT4G29100 | Q8S3D1 | BHLH68 | X | comp19881\_c1\_seq1 |
| 75 | TtbHLH19882\_c1\_seq1.p1 | AT1G51140 | Q9C690 | BHLH122 | IX | comp19882\_c1\_seq1 |
| 76 | TtbHLH19882\_c1\_seq2.p1 | AT2G42280 | Q66GR3 | BHLH130 | IX | comp19882\_c1\_seq2 |
| 77 | TtbHLH19932\_c1\_seq1.p1 | AT5G62610 | Q9LV17 | BHLH79 | XII | comp19932\_c1\_seq1 |
| 78 | TtbHLH19932\_c1\_seq2.p1 | AT1G59640 | Q0JXE7 | BPE | XII | comp19932\_c1\_seq2 |
| 79 | TtbHLH19932\_c1\_seq3.p1 | AT5G62610 | Q9LV17 | BHLH79 | XII | comp19932\_c1\_seq3 |
| 80 | TtbHLH19932\_c1\_seq4.p1 | AT1G59640 | Q0JXE7 | BPE | XII | comp19932\_c1\_seq4 |
| 81 | TtbHLH19934\_c0\_seq1.p1 | AT4G36930 | Q9FUA4 | SPT | VIIb | comp19934\_c0\_seq1 |
| 82 | TtbHLH20036\_c1\_seq1.p1 | AT1G09530 | O80536 | PIF3 | VIIa | comp20036\_c1\_seq1 |
| 83 | TtbHLH20298\_c2\_seq1.p1 | AT4G16430 | O23488 | BHLH3 | IIId | comp20298\_c2\_seq1 |
| 84 | TtbHLH20515\_c1\_seq1.p1 | AT4G02590 | O22768 | UNE12 | XII | comp20515\_c1\_seq1 |
| 85 | TtbHLH20515\_c1\_seq2.p1 | AT4G02590 | O22769 | UNE12 | XII | comp20515\_c1\_seq2 |
| 86 | TtbHLH20740\_c0\_seq1.p1 | AT4G29100 | Q8S3D2 | BHLH68 | X | comp20740\_c0\_seq1 |
| 87 | TtbHLH21025\_c0\_seq1.p1 | AT5G54680 | Q9FH37 | ILR3 | IVc | comp21025\_c0\_seq1 |
| 88 | TtbHLH21025\_c0\_seq2.p1 | AT5G54680 | Q9FH38 | ILR3 | IVc | comp21025\_c0\_seq2 |
| 89 | TtbHLH22497\_c0\_seq1.p1 | AT5G54680 | Q9FH39 | ILR3 | IVc | comp22497\_c0\_seq1 |
| 90 | TtbHLH24058\_c0\_seq1.p1 | AT2G43010 | Q8W2F3 | PIF4 | VIIa | comp24058\_c0\_seq1 |
| 91 | TtbHLH24742\_c0\_seq1.p1 | AT5G08130 | Q9LEZ3 | BIM1 | Va | comp24742\_c0\_seq1 |
| 92 | TtbHLH26182\_c0\_seq1.p1 | AT5G08130 | Q9LEZ3 | BIM1 | Va | comp26182\_c0\_seq1 |
| 93 | TtbHLH27561\_c0\_seq1.p1 | AT4G37850 | Q9T072 | BHLH25 | IVa | comp27561\_c0\_seq1 |
| 94 | TtbHLH29284\_c0\_seq1.p1 | AT5G46760 | Q9FIP9 | MYC3 | IIIe | comp29284\_c0\_seq1 |
| 95 | TtbHLH7898\_c0\_seq1.p1 | AT5G48560 | Q9FJL4 | BHLH78 | XII | comp7898\_c0\_seq1 |
| 96 | TtbHLH7955\_c0\_seq1.p1 | AT2G31280 | Q58G01 | BHLH155 | IIIe | comp7955\_c0\_seq1 |
| 97 | TtbHLH8004\_c0\_seq1.p1 | AT2G22760 | Q1PF16 | BHLH19 | Iva | comp8004\_c0\_seq1 |
| 98 | TtbHLH8393\_c0\_seq1.p1 | AT4G20970 | F4JIJ7 | BHLH162 | Ib | comp8393\_c0\_seq1 |
| 99 | TtbHLH8482\_c1\_seq1.p1 | AT4G17880 | O49687 | MYC4 | IIIe | comp8482\_c1\_seq1 |
| 100 | TtbHLH8636\_c1\_seq1.p1 | AT1G32640 | Q39204 | MYC2 | IIIe | comp8636\_c1\_seq1 |
| 101 | TtbHLH8854\_c0\_seq1.p1 | AT1G01260 | Q9LNJ5 | BHLH13 | IIId | comp8854\_c0\_seq1 |
| 102 | TtbHLH8912\_c0\_seq1.p1 | AT3G26744 | Q9LSE2 | SCRM | IIIb | comp8912\_c0\_seq1 |
| 103 | TtbHLH9284\_c0\_seq1.p1 | AT4G37850 | Q9T072 | BHLH25 | IVa | comp9284\_c0\_seq1 |
| 104 | TtbHLH9319\_c0\_seq1.p1 | AT1G05805 | Q8H102 | BHLH128 | IX | comp9319\_c0\_seq1 |
| 105 | TtbHLH9369\_c0\_seq1.p1 | AT4G37850 | Q9T072 | BHLH25 | IVa | comp9369\_c0\_seq1 |

# **Supplementary File 1f:** The number of PsbHLH and TtbHLH in each species analysed

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No** | **Group** | **Subgroup** | **PsbHLH numbers** | **TtbHLH numbers** | **Total Numbers** |
| 1 | I | a | 2 | 0 | 2 |
| 2 | I | b | 0 | 3 | 3 |
| 3 | III | a | 0 | 1 | 1 |
| 4 | III | b | 2 | 1 | 3 |
| 5 | III | c | 1 | 1 | 2 |
| 6 | III | d | 4 | 2 | 6 |
| 7 | III | e | 7 | 5 | 12 |
| 8 | III | f | 0 | 1 | 1 |
| 9 | IV | a | 0 | 5 | 5 |
| 10 | IV | c | 11 | 5 | 16 |
| 11 | V | a | 2 | 2 | 4 |
| 12 | VII | a | 2 | 4 | 6 |
| 13 | VII | b | 2 | 2 | 4 |
| 14 | VIII | b | 0 | 4 | 4 |
| 15 | IX |  | 5 | 3 | 8 |
| 16 | X |  | 2 | 2 | 4 |
| 17 | XI |  | 0 | 1 | 1 |
| 18 | XII |  | 12 | 11 | 23 |
|  |  | Total | 52 | 53 | 105 |

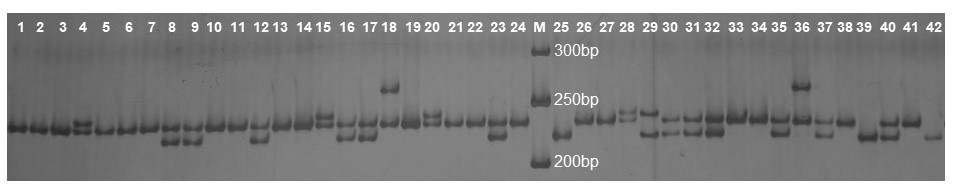
**Supplementary File 1g:** Information of 77 *PsERF* and *TtERF* genes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S. No** | **ERF TF ID** | **Ath Hit** | **Entry** | **Gene** | **Group** | **Unigene ID** |
| 1 | PsERF11572\_c0\_g1.p1 | AT2G40350 | Q9SIZ0 | DREB2H | IVa | TRINITY\_DN11572\_c0\_g1 |
| 2 | PsERF11572\_c1\_g1.p1 | AT2G40350 | Q9SIZ1 | DREB2H | IVa | TRINITY\_DN11572\_c1\_g1 |
| 3 | PsERF12706\_c0\_g1.p1 | AT4G34410 | Q9SZ06 | ERF109 | Xb | TRINITY\_DN12706\_c0\_g1 |
| 4 | PsERF12706\_c0\_g2.p1 | AT4G34410 | Q9SZ07 | ERF109 | Xb | TRINITY\_DN12706\_c0\_g2 |
| 5 | PsERF13199\_c0\_g1.p1 | AT5G51190 | Q8VY90 | ERF105 | IXb | TRINITY\_DN13199\_c0\_g1 |
| 6 | PsERF13199\_c0\_g2.p1 | AT5G51190 | Q8VY91 | ERF105 | IXb | TRINITY\_DN13199\_c0\_g2 |
| 7 | PsERF1360\_c0\_g1.p1 | AT5G25390 | Q3E958 | SHN3 | Va | TRINITY\_DN1360\_c0\_g1 |
| 8 | PsERF14345\_c0\_g1.p1 | AT1G46768 | Q8LC30 | RAP2-1 | IIa | TRINITY\_DN14345\_c0\_g1 |
| 9 | PsERF14356\_c0\_g2.p1 | AT1G64380 | Q9C7W2 | ERF061 | Ib | TRINITY\_DN14356\_c0\_g2 |
| 10 | PsERF15106\_c0\_g1.p1 | AT5G07580 | Q9LY05 | ERF106 | IXb | TRINITY\_DN15106\_c0\_g1 |
| 11 | PsERF15476\_c0\_g1.p1 | AT1G68550 | Q9CA27 | ERF118 | VI-L | TRINITY\_DN15476\_c0\_g1 |
| 12 | PsERF15487\_c0\_g1.p1 | AT5G25390 | Q3E959 | SHN3 | Va | TRINITY\_DN15487\_c0\_g1 |
| 13 | PsERF15538\_c0\_g1.p1 | AT1G01250 | Q1ECI2 | ERF023 | IIIa | TRINITY\_DN15538\_c0\_g1 |
| 14 | PsERF1580\_c0\_g2.p1 | AT1G78080 | Q8H1E4 | RAP2-4 | Ib | TRINITY\_DN1580\_c0\_g2 |
| 15 | PsERF1649\_c0\_g2.p1 | AT3G16770 | P42736 | RAP2-3 | VII | TRINITY\_DN1649\_c0\_g2 |
| 16 | PsERF1729\_c0\_g1.p1 | AT4G17500 | O80337 | ERF1A | IXa | TRINITY\_DN1729\_c0\_g1 |
| 17 | PsERF1831\_c0\_g1.p1 | AT3G15210 | O80340 | ERF4 | VIIIa | TRINITY\_DN1831\_c0\_g1 |
| 18 | PsERF1831\_c0\_g2.p1 | AT3G15210 | O80341 | ERF4 | VIIIa | TRINITY\_DN1831\_c0\_g2 |
| 19 | PsERF1831\_c0\_g4.p1 | AT3G15210 | O80342 | ERF4 | VIIIa | TRINITY\_DN1831\_c0\_g4 |
| 20 | PsERF2319\_c0\_g1.p1 | AT1G19210 | Q84QC2 | ERF017 | IIb | TRINITY\_DN2319\_c0\_g1 |
| 21 | PsERF2319\_c0\_g2.p1 | AT1G19210 | Q84QC3 | ERF017 | IIb | TRINITY\_DN2319\_c0\_g2 |
| 22 | PsERF2319\_c0\_g3.p1 | AT1G19210 | Q84QC4 | ERF017 | IIb | TRINITY\_DN2319\_c0\_g3 |
| 23 | PsERF2319\_c0\_g3.p3 | AT1G19210 | Q84QC5 | ERF017 | IIb | TRINITY\_DN2319\_c0\_g3 |
| 24 | PsERF2541\_c0\_g1.p1 | AT5G44210 | Q9FE67 | ERF9 | VIIIa | TRINITY\_DN2541\_c0\_g1 |
| 25 | PsERF2541\_c0\_g2.p1 | AT5G44210 | Q9FE68 | ERF9 | VIIIa | TRINITY\_DN2541\_c0\_g2 |
| 26 | PsERF2541\_c0\_g3.p1 | AT5G44210 | Q9FE69 | ERF9 | VIIIa | TRINITY\_DN2541\_c0\_g3 |
| 27 | PsERF2541\_c0\_g4.p1 | AT5G44210 | Q9FE70 | ERF9 | VIIIa | TRINITY\_DN2541\_c0\_g4 |
| 28 | PsERF2588\_c0\_g1.p1 | AT1G50640 | O80339 | ERF3 | VIIIa | TRINITY\_DN2588\_c0\_g1 |
| 29 | PsERF2588\_c0\_g2.p1 | AT1G50640 | O80340 | ERF3 | VIIIa | TRINITY\_DN2588\_c0\_g2 |
| 30 | PsERF3449\_c3\_g1.p1 | AT1G01250 | Q1ECI3 | ERF023 | IIIa | TRINITY\_DN3449\_c3\_g1 |
| 31 | PsERF3449\_c4\_g1.p1 | AT1G01250 | Q1ECI4 | ERF023 | IIIa | TRINITY\_DN3449\_c4\_g1 |
| 32 | PsERF3667\_c0\_g2.p2 | AT1G50640 | O80341 | ERF3 | VIIIa | TRINITY\_DN3667\_c0\_g2 |
| 33 | PsERF3814\_c0\_g1.p1 | AT2G23340 | O22174 | ERF008 |  | TRINITY\_DN3814\_c0\_g1 |
| 34 | PsERF3814\_c0\_g2.p1 | AT3G50260 | Q9SNE1 | ERF011 | IIa | TRINITY\_DN3814\_c0\_g2 |
| 35 | PsERF4263\_c0\_g1.p1 | AT4G13040 | Q56XP9 | At4g13040 |  | TRINITY\_DN4263\_c0\_g1 |
| 36 | PsERF5156\_c0\_g1.p1 | AT5G07580 | Q9LY06 | ERF106 | IXb | TRINITY\_DN5156\_c0\_g1 |
| 37 | PsERF525\_c0\_g1.p1 | AT5G47230 | O80341 | ERF5 | IXb | TRINITY\_DN525\_c0\_g1 |
| 38 | PsERF525\_c1\_g1.p1 | AT5G47230 | O80342 | ERF5 | IXb | TRINITY\_DN525\_c1\_g1 |
| 39 | PsERF5602\_c0\_g1.p1 | AT5G47230 | O80343 | ERF5 | IXb | TRINITY\_DN5602\_c0\_g1 |
| 40 | PsERF5602\_c0\_g2.p1 | AT5G47230 | O80344 | ERF5 | IXb | TRINITY\_DN5602\_c0\_g2 |
| 41 | PsERF6068\_c0\_g3.p1 | AT1G50640 | O80342 | ERF3 | Va | TRINITY\_DN6068\_c0\_g3 |
| 42 | PsERF6252\_c0\_g2.p1 | AT1G68550 | Q9CA28 | ERF118 | VI-L | TRINITY\_DN6252\_c0\_g2 |
| 43 | PsERF6404\_c0\_g1.p1 | AT4G17500 | O80338 | ERF1A | IXa | TRINITY\_DN6404\_c0\_g1 |
| 44 | PsERF6937\_c0\_g2.p1 | AT1G15360 | Q9XI33 | WIN1 | Va | TRINITY\_DN6937\_c0\_g2 |
| 45 | PsERF8159\_c1\_g1.p1 | AT4G17500 | O80339 | ERF1A | IXa | TRINITY\_DN8159\_c1\_g1 |
| 46 | PsERF9270\_c0\_g1.p2 | AT5G11590 | Q9LYD3 | DREB3 | IIIe | TRINITY\_DN9270\_c0\_g1 |
| 47 | PsERF9270\_c0\_g2.p2 | AT5G11590 | Q9LYD4 | DREB3 | IIIe | TRINITY\_DN9270\_c0\_g2 |
| 48 | PsERF9606\_c0\_g2.p1 | AT2G40340 | Q8LFR2 | DREB2C | IVa | TRINITY\_DN9606\_c0\_g2 |
| 49 | PsERF990\_c0\_g1.p1 | AT1G78080 | Q8H1E5 | RAP2-4 | Ib | TRINITY\_DN990\_c0\_g1 |
| 50 | PsERF990\_c0\_g2.p1 | AT1G78080 | Q8H1E6 | RAP2-4 | Ib | TRINITY\_DN990\_c0\_g2 |
| 51 | PsERF990\_c0\_g3.p1 | AT1G78080 | Q8H1E7 | RAP2-4 | Ib | TRINITY\_DN990\_c0\_g3 |
| 52 | TtERF10593\_c0\_seq1.p1 | AT3G16770 | P42737 | RAP2-3 | VII | comp10593\_c0\_seq1 |
| 53 | TtERF12935\_c0\_seq1.p1 | AT5G61890 | Q9FH54 | ERF114 | Xa | comp12935\_c0\_seq1 |
| 54 | TtERF13336\_c1\_seq1.p1 | AT1G68550 | Q9CA29 | ERF118 | VI-L | comp13336\_c1\_seq1 |
| 55 | TtERF15970\_c2\_seq1.p1 | AT1G72570 | Q1PFE1 | AIL1 |  | comp15970\_c2\_seq1 |
| 56 | TtERF18492\_c1\_seq1.p1 | AT3G16770 | P42738 | RAP2-3 | VII | comp18492\_c1\_seq1 |
| 57 | TtERF18712\_c0\_seq1.p1 | AT3G14230 | Q9LUM4 | RAP2-2 | VII | comp18712\_c0\_seq1 |
| 58 | TtERF18712\_c0\_seq2.p1 | AT3G14230 | Q9LUM5 | RAP2-2 | VII | comp18712\_c0\_seq2 |
| 59 | TtERF18712\_c0\_seq3.p1 | AT3G14230 | Q9LUM6 | RAP2-2 | VII | comp18712\_c0\_seq3 |
| 60 | TtERF19151\_c1\_seq1.p1 | AT5G47230 | O80345 | ERF5 | IXb | comp19151\_c1\_seq1 |
| 61 | TtERF19151\_c1\_seq2.p1 | AT4G17490 | Q8VZ91 | ERF6 | IXb | comp19151\_c1\_seq2 |
| 62 | TtERF19900\_c1\_seq1.p1 | AT3G25730 | Q9LS06 | ARF14 |  | comp19900\_c1\_seq1 |
| 63 | TtERF20119\_c0\_seq1.p1 | AT1G78080 | Q8H1E8 | RAP2-4 | Ib | comp20119\_c0\_seq1 |
| 64 | TtERF20119\_c2\_seq1.p1 | AT1G78080 | Q8H1E9 | RAP2-4 | Ib | comp20119\_c2\_seq1 |
| 65 | TtERF20277\_c5\_seq2.p1 | AT5G44210 | Q9FE71 | ERF9 | VIIIa | comp20277\_c5\_seq2 |
| 66 | TtERF20277\_c5\_seq3.p1 | AT3G15210 | O80343 | ERF4 | VIIIa | comp20277\_c5\_seq3 |
| 67 | TtERF20277\_c5\_seq4.p1 | AT3G15210 | O80344 | ERF4 | VIIIa | comp20277\_c5\_seq4 |
| 68 | TtERF20277\_c5\_seq5.p1 | AT5G44210 | Q9FE72 | ERF9 | VIIIa | comp20277\_c5\_seq5 |
| 69 | TtERF22519\_c0\_seq1.p1 | AT5G07580 | Q9LY07 | ERF106 | IXb | comp22519\_c0\_seq1 |
| 70 | TtERF23985\_c0\_seq1.p1 | AT2G40350 | Q9SIZ2 | DREB2H | IVa | comp23985\_c0\_seq1 |
| 71 | TtERF26957\_c0\_seq1.p1 | AT5G51190 | Q8VY92 | ERF105 | IXb | comp26957\_c0\_seq1 |
| 72 | TtERF42323\_c0\_seq1.p1 | AT1G68550 | Q9CA30 | ERF118 | VI-L | comp42323\_c0\_seq1 |
| 73 | TtERF641\_c0\_seq1.p1 | AT4G28140 | Q9M0J3 | ERF054 | Ia | comp641\_c0\_seq1 |
| 74 | TtERF7718\_c0\_seq1.p1 | AT1G01250 | Q1ECI5 | ERF023 | IIIa | comp7718\_c0\_seq1 |
| 75 | TtERF8828\_c0\_seq1.p1 | AT1G50640 | O80343 | ERF3 | VIIIa | comp8828\_c0\_seq1 |
| 76 | TtERF8891\_c0\_seq1.p1 | AT1G78080 | Q8H1E10 | RAP2-4 | Ib | comp8891\_c0\_seq1 |
| 77 | TtERF8891\_c1\_seq1.p1 | AT5G65130 | Q9FJQ2 | ERF057 | Ib | comp8891\_c1\_seq1 |

**Supplementary File 1h:** The number of PsERFand TtbERF in each species analysed

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No** | **Group** | **Subgroup** | **PsERF numbers** | **TtERF numbers** | **Total numbers** |
| 1 | I | a | 0 | 1 | 1 |
| 2 | I | b | 5 | 4 | 9 |
| 3 | II | a | 2 | 0 | 2 |
| 4 | II | b | 4 | 0 | 4 |
| 5 | III | a | 3 | 1 | 4 |
| 6 | III | e | 2 | 0 | 2 |
| 7 | IV | a | 3 | 1 | 4 |
| 8 | V | a | 4 | 0 | 4 |
| 9 | VI | L | 2 | 2 | 4 |
| 10 | VII |  | 1 | 5 | 6 |
| 11 | VIII | a | 10 | 5 | 15 |
| 12 | IX | a | 3 | 0 | 3 |
| 13 | IX | b | 8 | 4 | 12 |
| 14 | X | a | 0 | 1 | 1 |
| 15 | X | b | 2 | 0 | 2 |
| 16 |  | Unclassified | 2 | 2 | 4 |
|  |  | Total | 51 | 26 | 77 |

**Supplementary File 1i:** Gel profile of 42 *P*. *santalinus* DNA samples amplified with IFGTB442 EST- SSR marker



1 – 4: Chitoor East (CE), 5 – 6: Puttur (PU), 7 – 10: Srikalakasti (SKH), 11 – 14: Mamandur North (MN), 15 – 18: Mamandur South (MS), 19 – 29: Chamala (CH), 30 – 38: Tirupathi (TR), 39 – 42: Balapalli (BP), M – 50bp ladder.