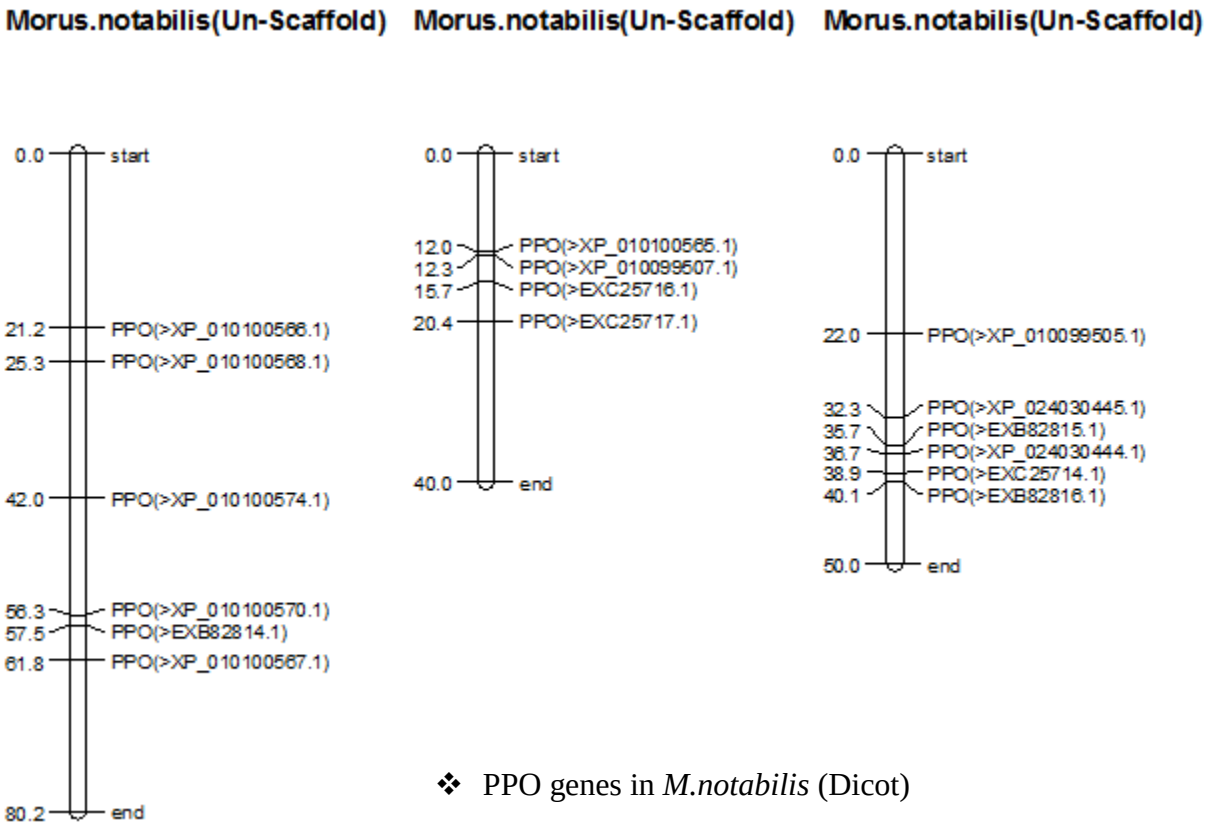
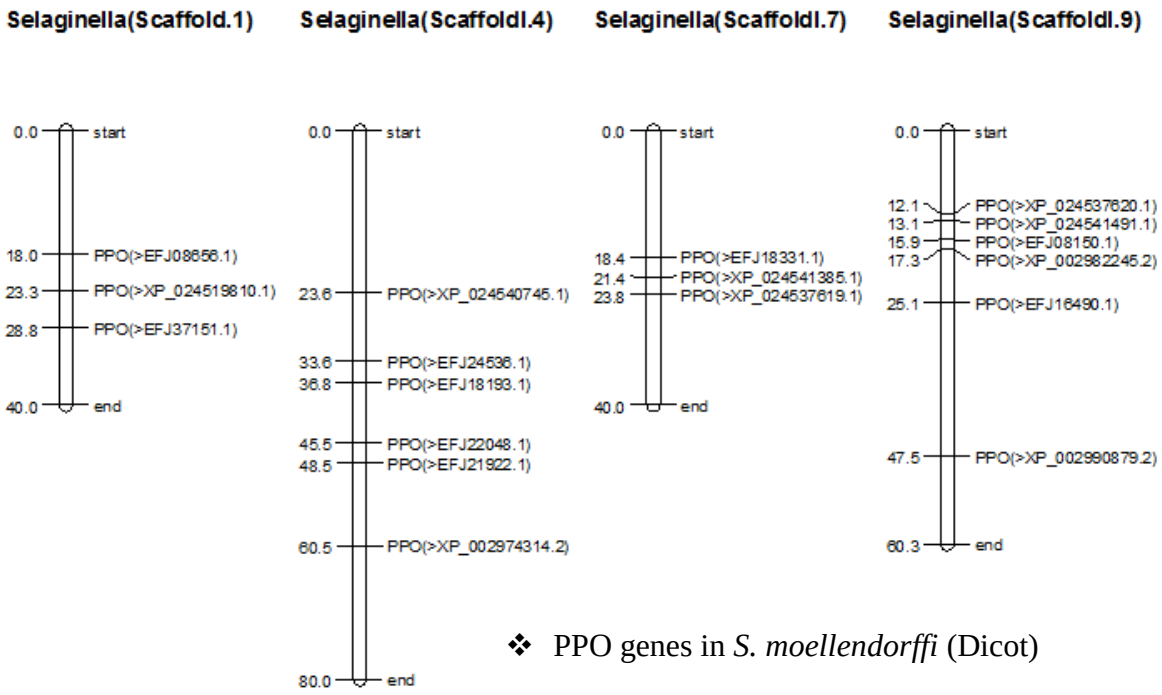
Supplementary Information: Figure A - Figure 7(b)

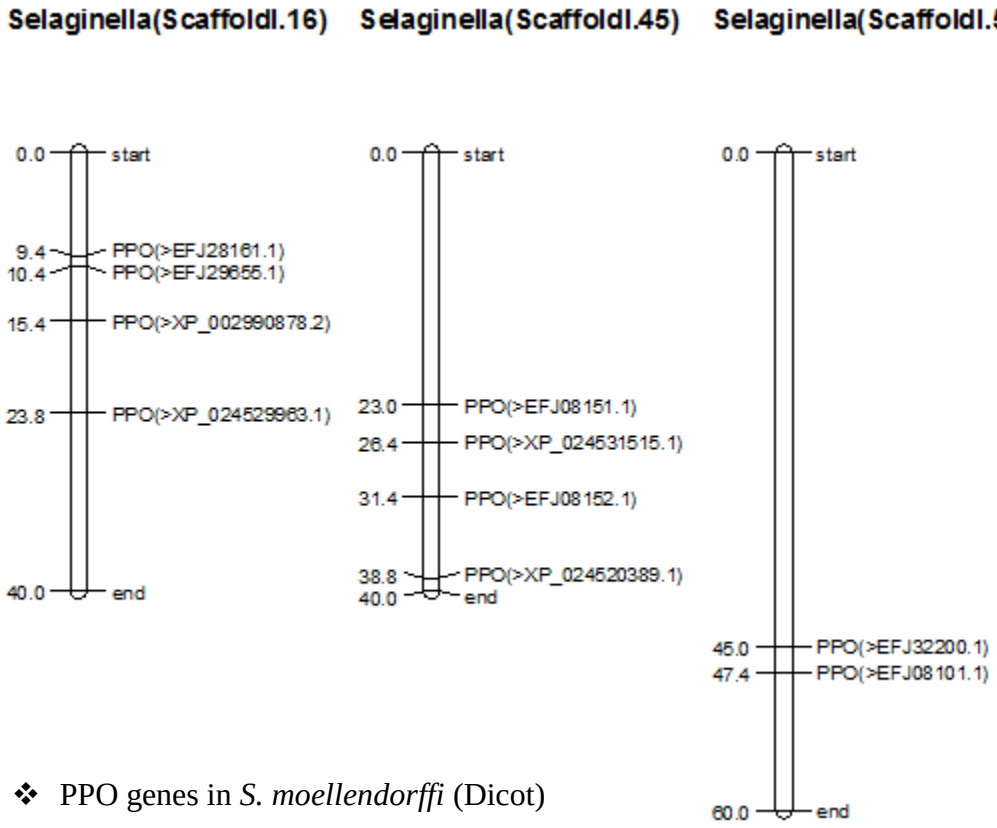
Supplementary file: Insilco Physical Mapping of PPOs and POX Genes, the total number of PPO genes are represented on etch chromosomal location. On the other hand, the results POX genes are presented via directly extracting form CoGe blast, that show the distribution of cluster of genes on individual chromosomes number



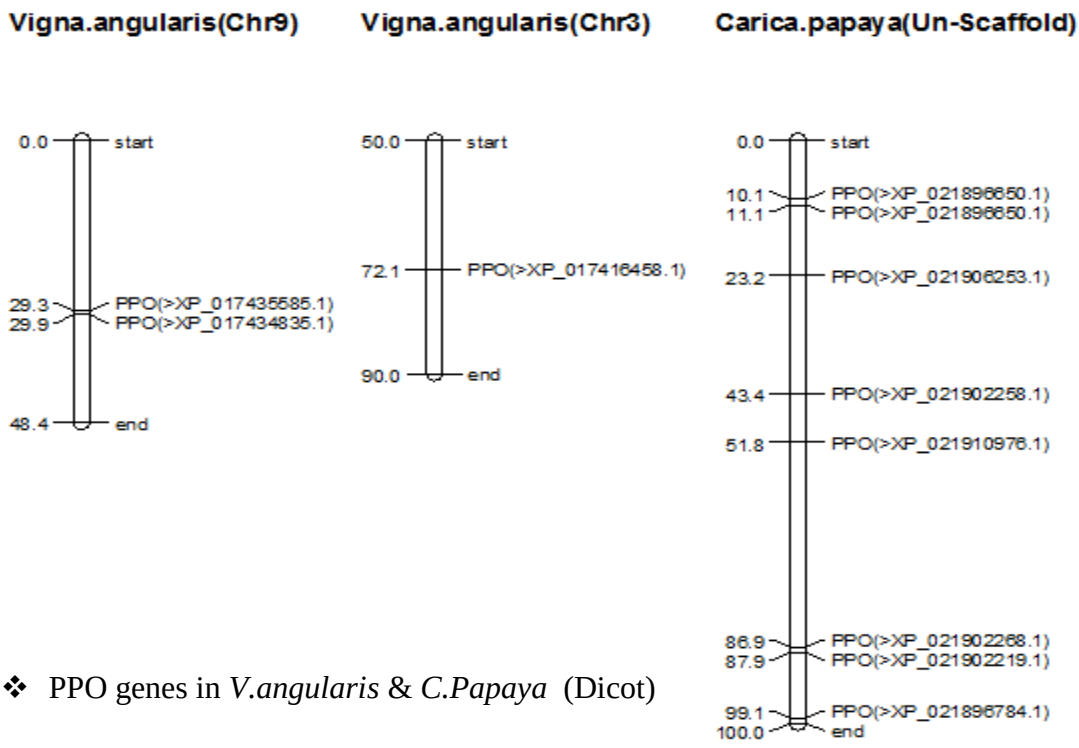
❖ PPO genes in *M.notabilis* (Dicot)



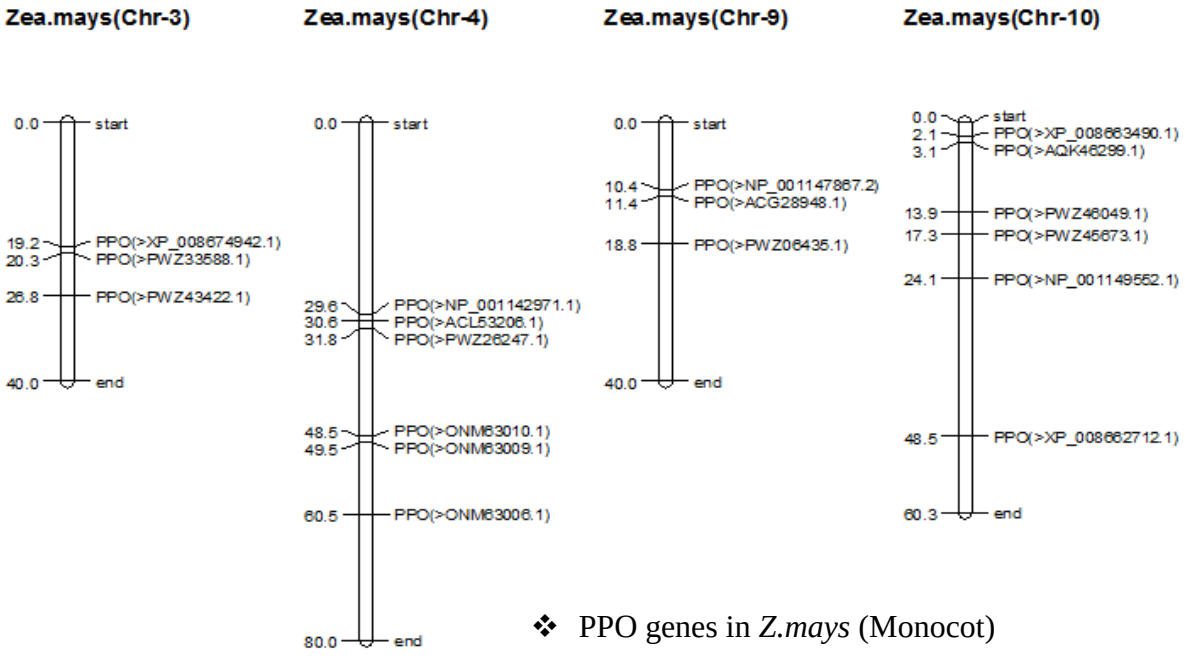
❖ PPO genes in *S. moellendorffi* (Dicot)



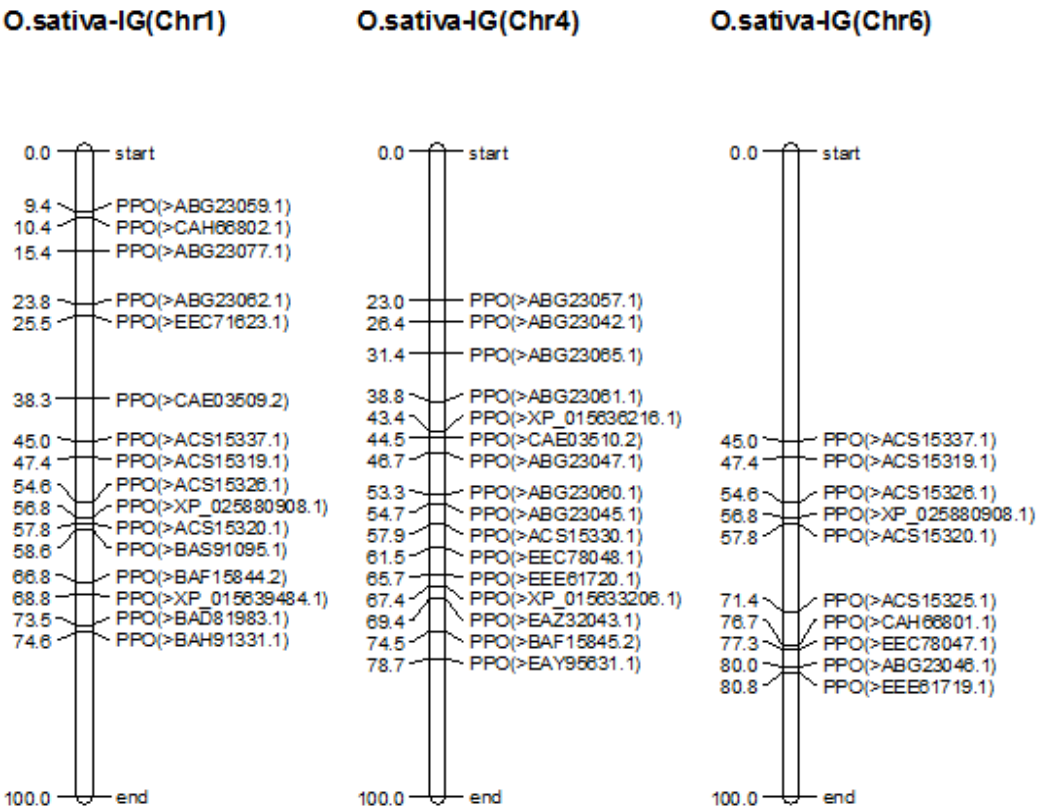
❖ PPO genes in *S. moellendorffi* (Dicot)



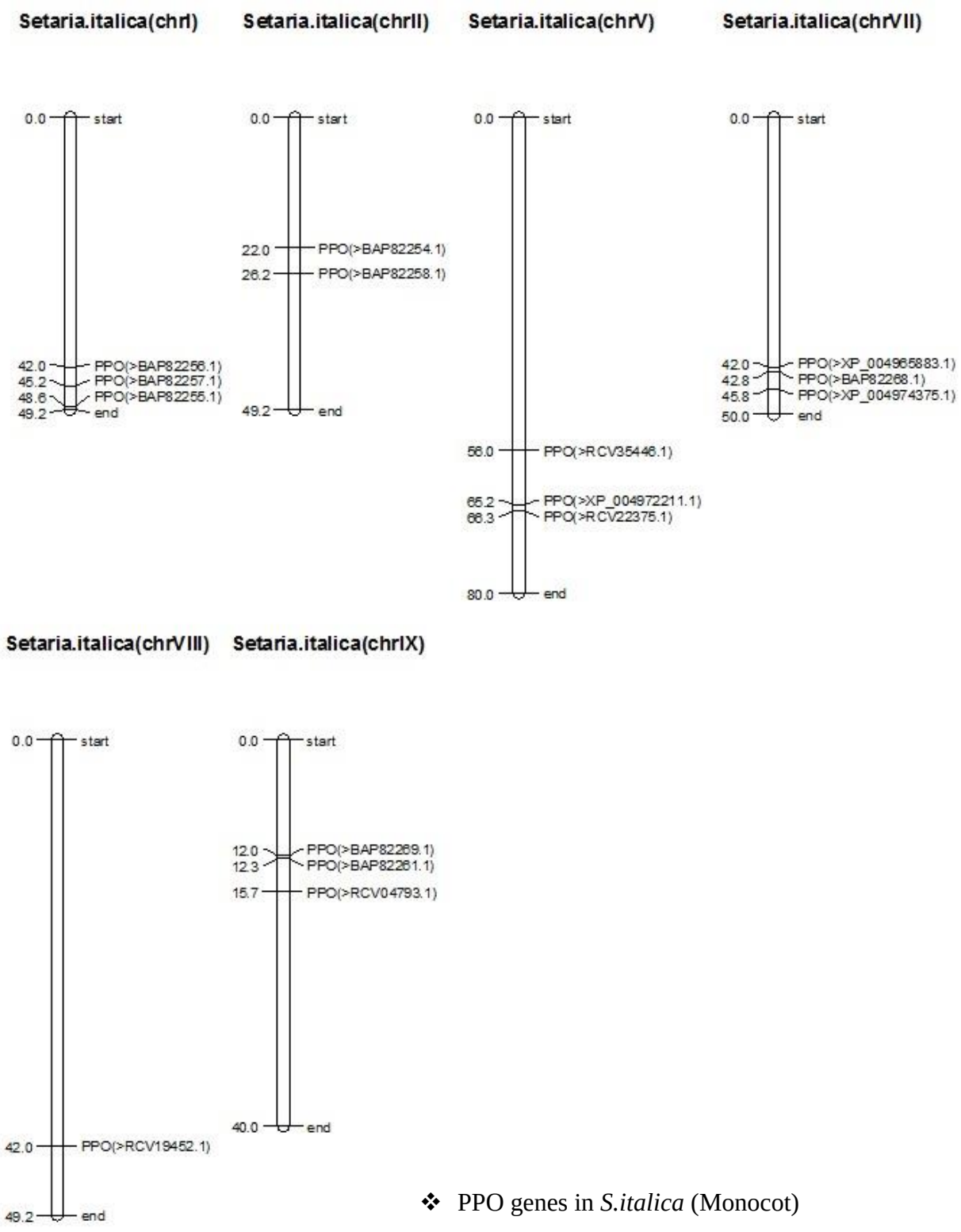
❖ PPO genes in *V.angularis* & *C.Papaya* (Dicot)



❖ PPO genes in *Z.mays* (Monocot)

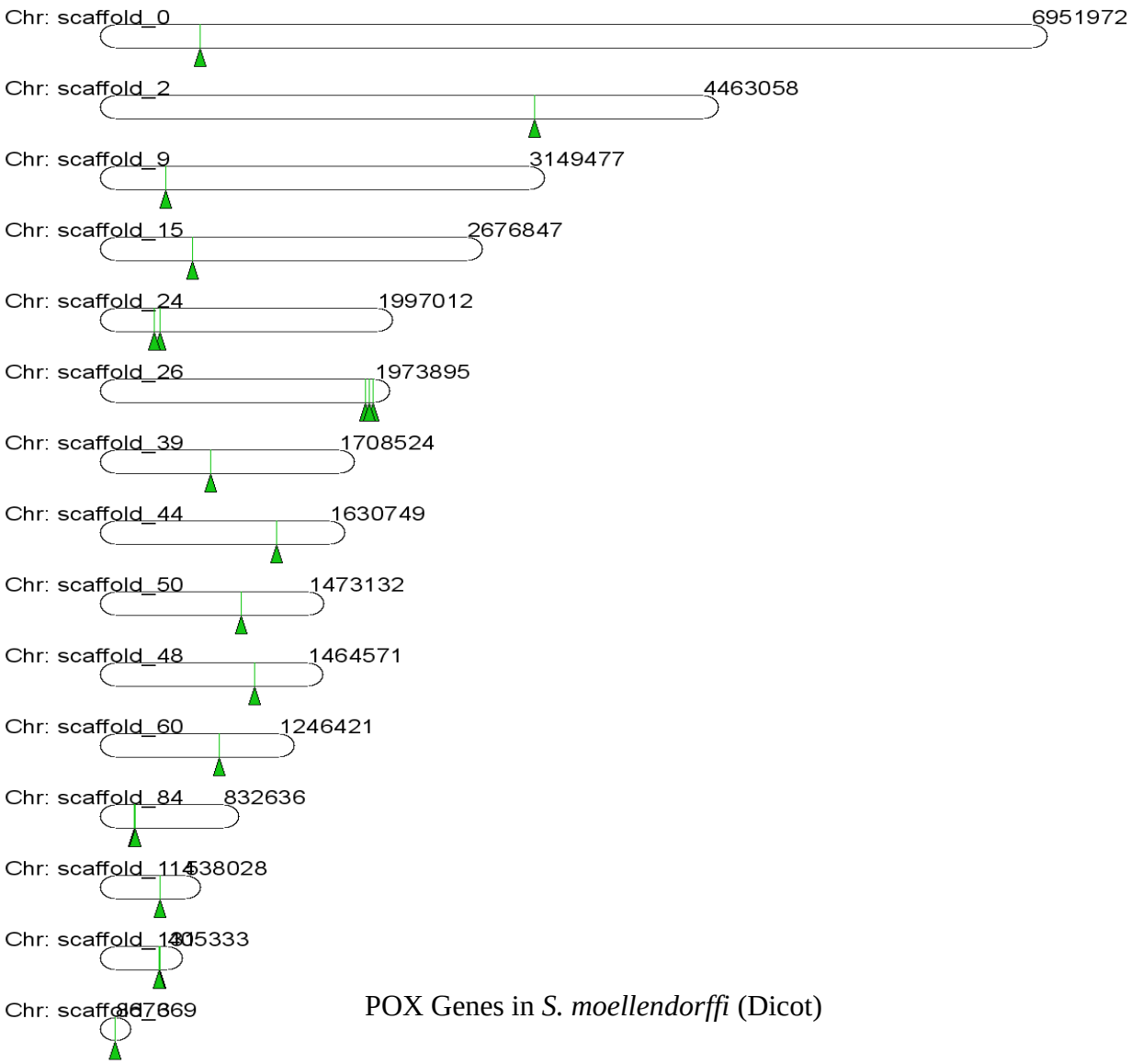


- PPO genes in *O.sativa* (Monocot)

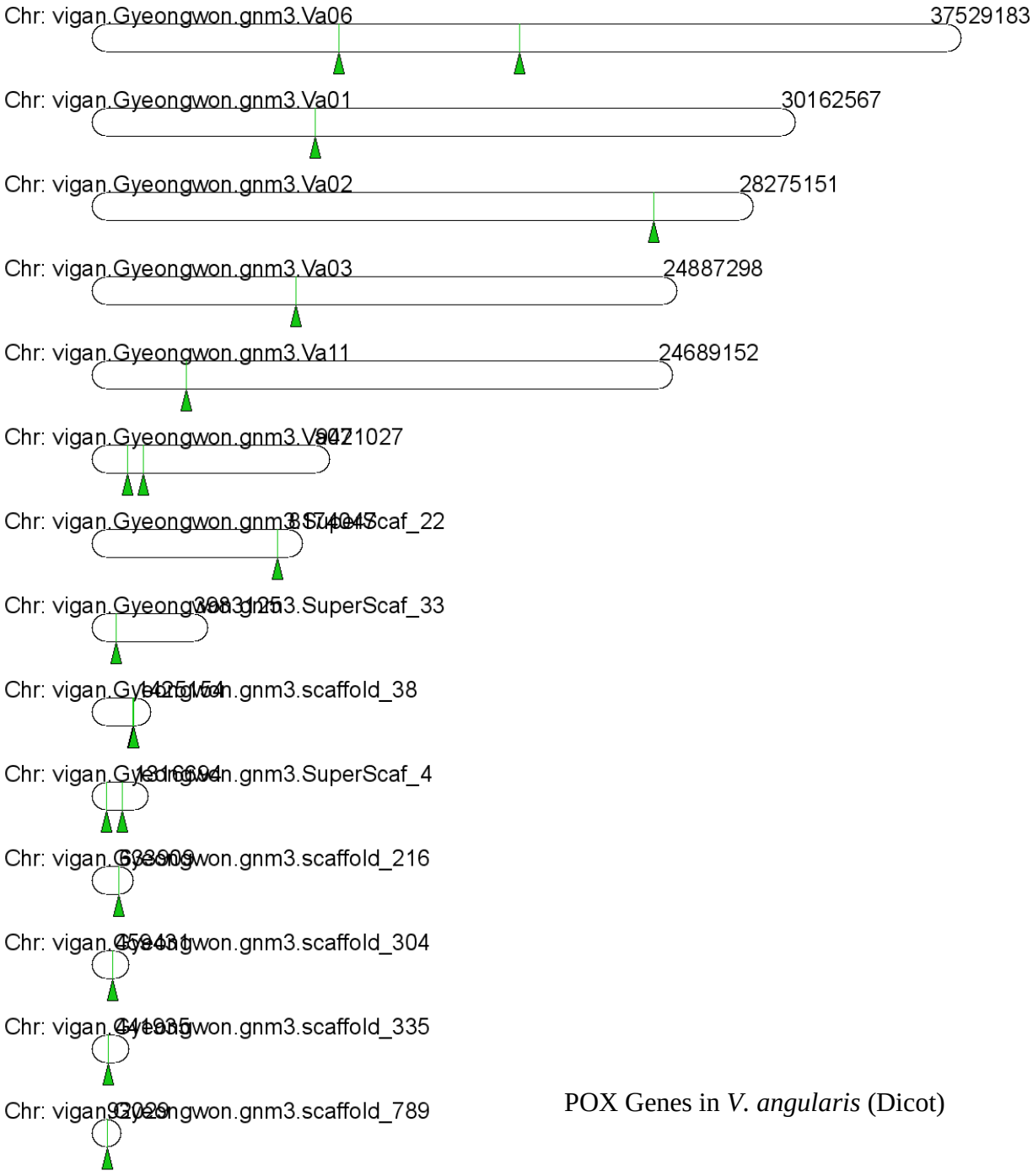


❖ PPO genes in *S.italica* (Monocot)

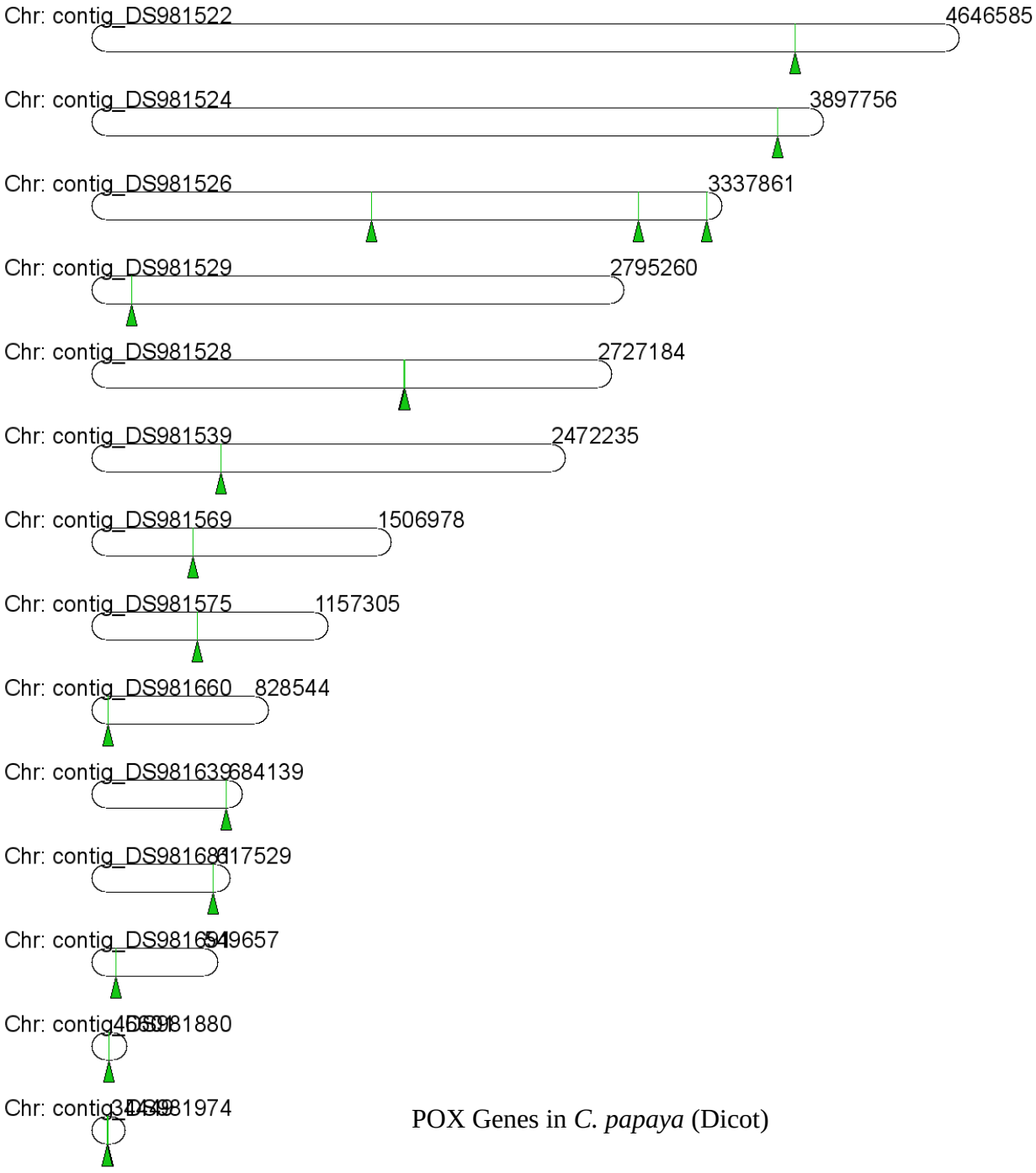
POX gene family



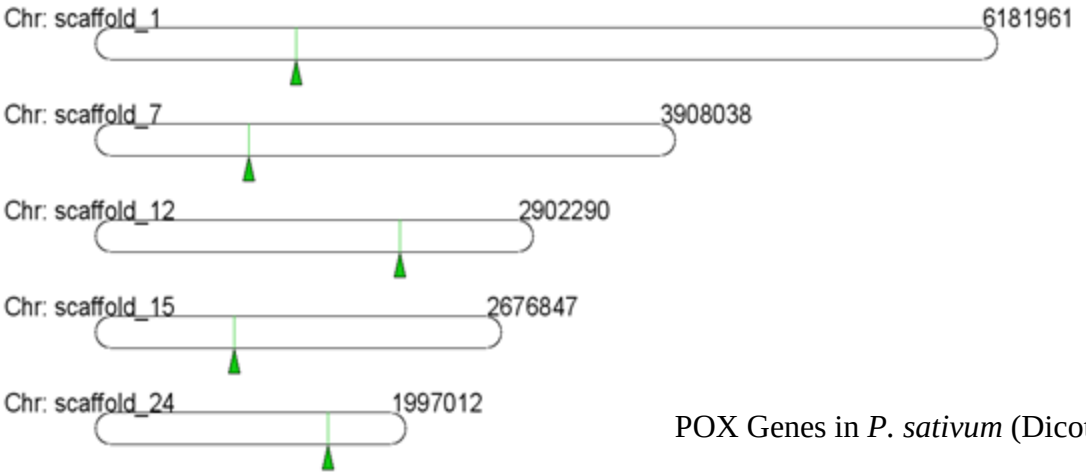
POX Genes in *S. moellendorffi* (Dicot)



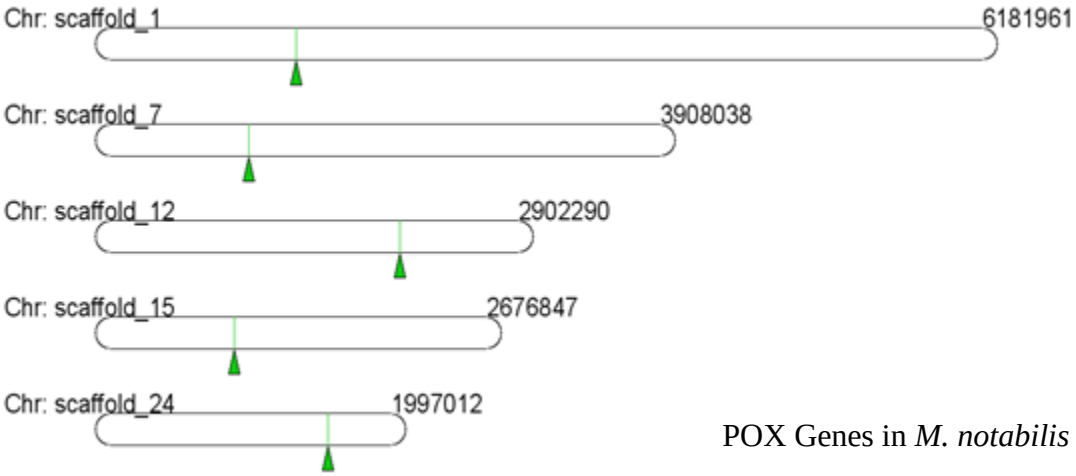
POX Genes in *V. angularis* (Dicot)



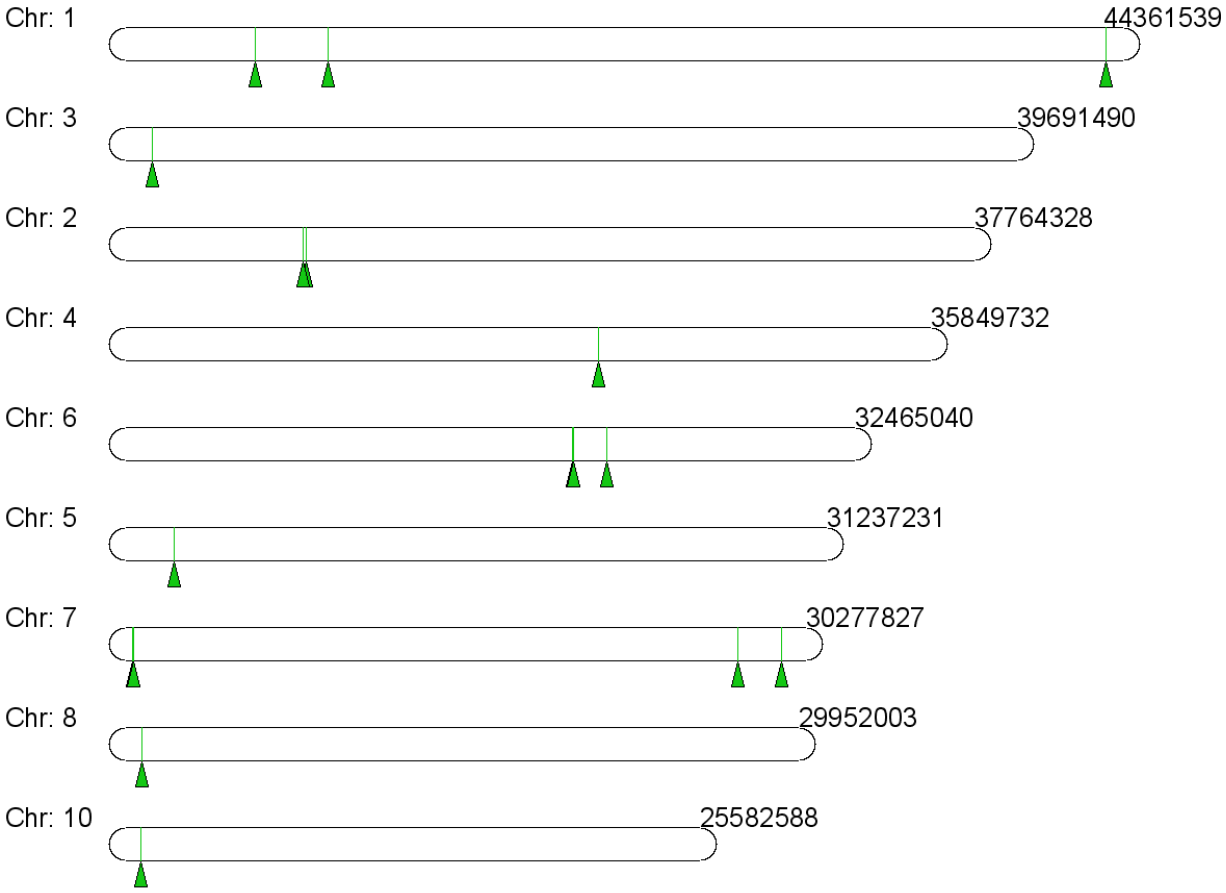
POX Genes in *C. papaya* (Dicot)



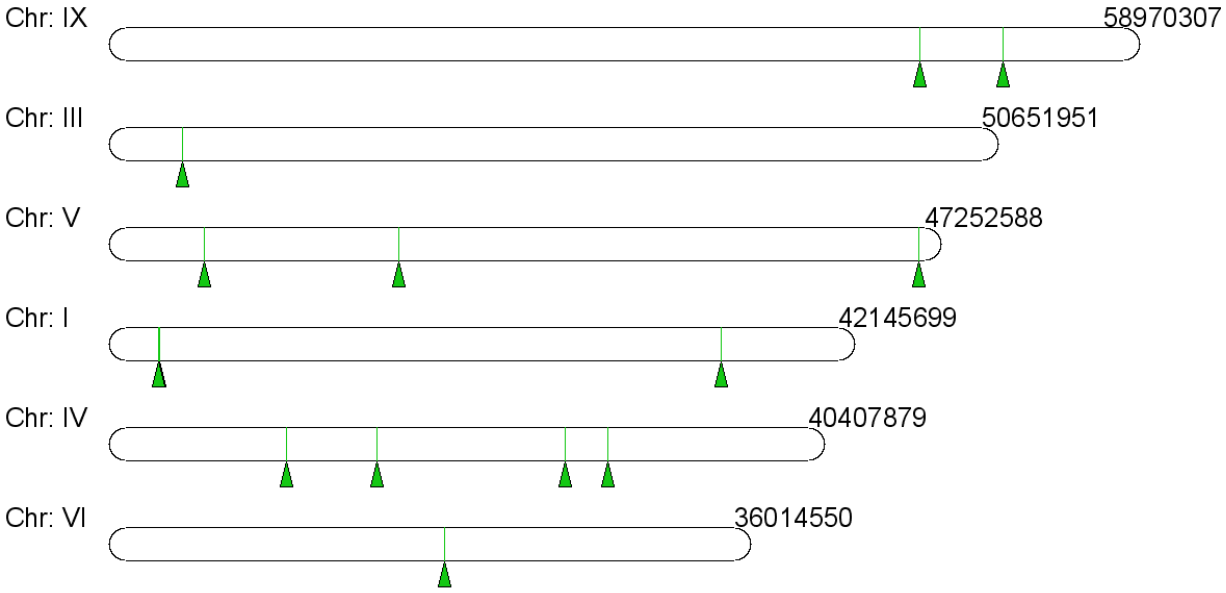
POX Genes in *P. sativum* (Dicot)



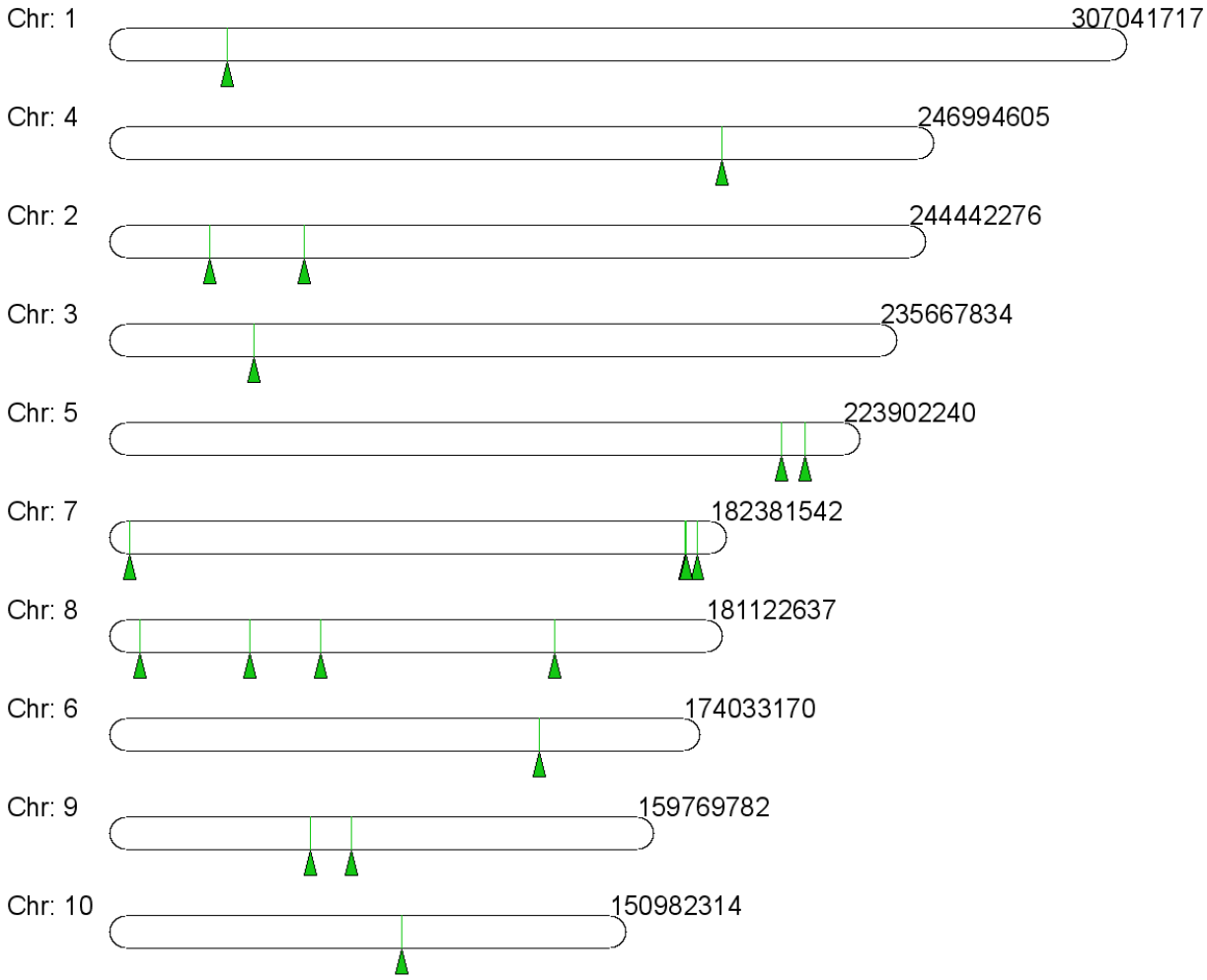
POX Genes in *M. notabilis* (Dicot)



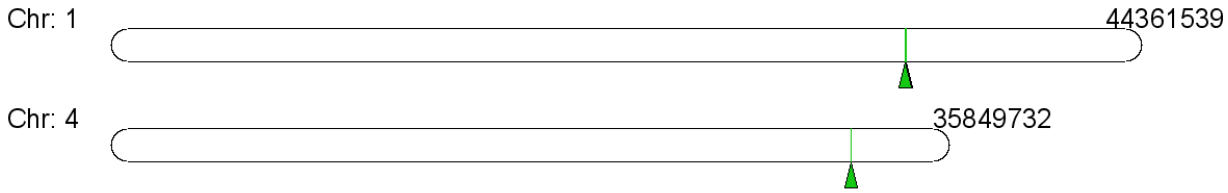
POX Genes in *O. sativa* (Monocot)



POX Genes in *S. italic* (Monocot)



POX -A Genes in *Z. mays* (Monocot)



POX Genes in *A. sativa* (Monocot)

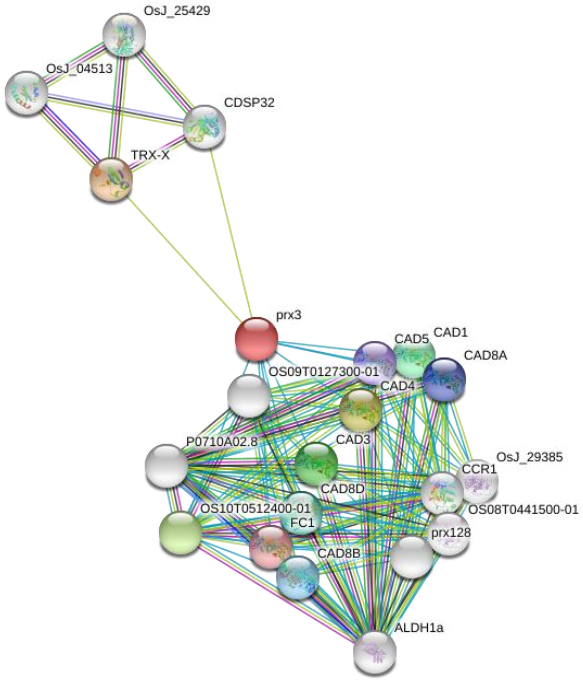


Figure (a): The networks of POX were downloaded from String database

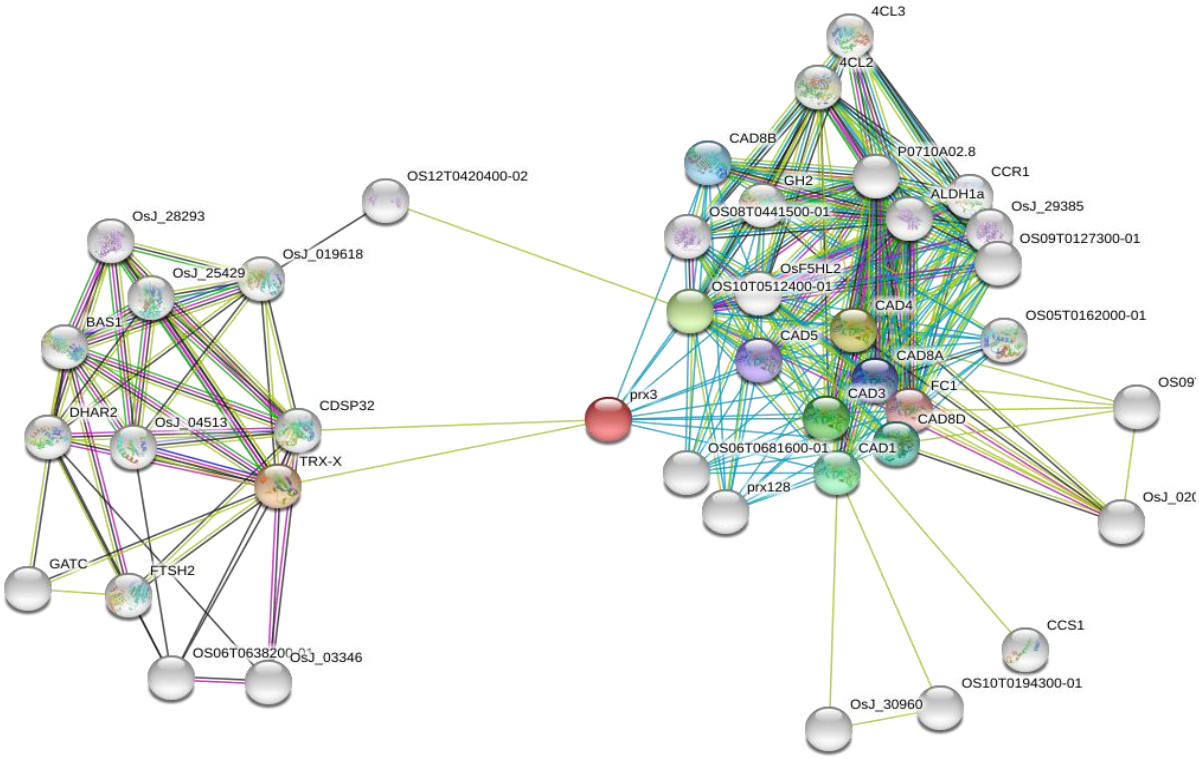


Figure: POX genes network divided into 9 k-means clusters

TRX-X	*Thioredoxin X, chloroplastic; Thiol-disulfide oxidoreductase that may participate in various redox reactions. Possess...*	●	0.770
CAD4	*Putative cinnamyl alcohol dehydrogenase 4; Involved in lignin biosynthesis. Catalyzes the final step specific for the ...*	●	0.650
OS10T0512400-01	*Cytochrome P450 84A1, putative, expressed; Os10g0512400 protein (530 aa)*	●	0.650
CAD3	*Probable cinnamyl alcohol dehydrogenase 3; Involved in lignin biosynthesis. Catalyzes the final step specific for the ...*	●	0.650
CAD1	*Probable cinnamyl alcohol dehydrogenase 1; Involved in lignin biosynthesis. Catalyzes the final step specific for the ...*	●	0.650
CAD8D	*Probable cinnamyl alcohol dehydrogenase 8D; Involved in lignin biosynthesis. Catalyzes the final step specific for th...*	●	0.650
CAD8B	*Probable cinnamyl alcohol dehydrogenase 8B; Involved in lignin biosynthesis. Catalyzes the final step specific for th...*	●	0.650
CAD8A	*Probable cinnamyl alcohol dehydrogenase 8A; Involved in lignin biosynthesis. Catalyzes the final step specific for th...*	●	0.650
CAD5	*Probable cinnamyl alcohol dehydrogenase 5; Involved in lignin biosynthesis. Catalyzes the final step specific for the ...*	●	0.650
FC1	*Cinnamyl alcohol dehydrogenase 7; Involved in lignin biosynthesis. May catalyze the final step specific for the produ...*	●	0.650

Figure (c): Predicted functional partner of POX-A genes

Localization	Score
Extracellular	3.108
Plasmamembrane	0.488
Cytoplasmic	0.058
Cytoskeletal	0.006
ER	0.044
Golgi	0.015
Lysosomal	0.472
Mitochondrial	0.258
Chloroplast	0.116
Peroxisomal	0.109
Vacuole	0.271
Nuclear	0.055

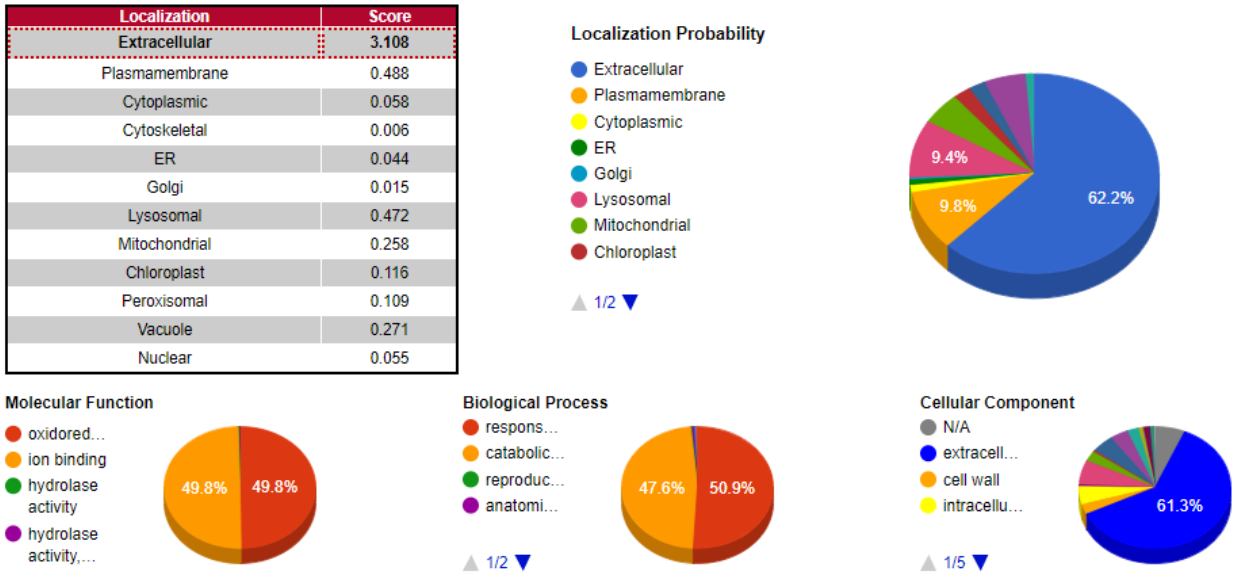


Figure 7(b): A sub- cellular localization and gene ontology (A: Molecular functions, B; Biological functions and C; Cellular functions) of POX genes. A confidence score are predicted in different colour coded.