

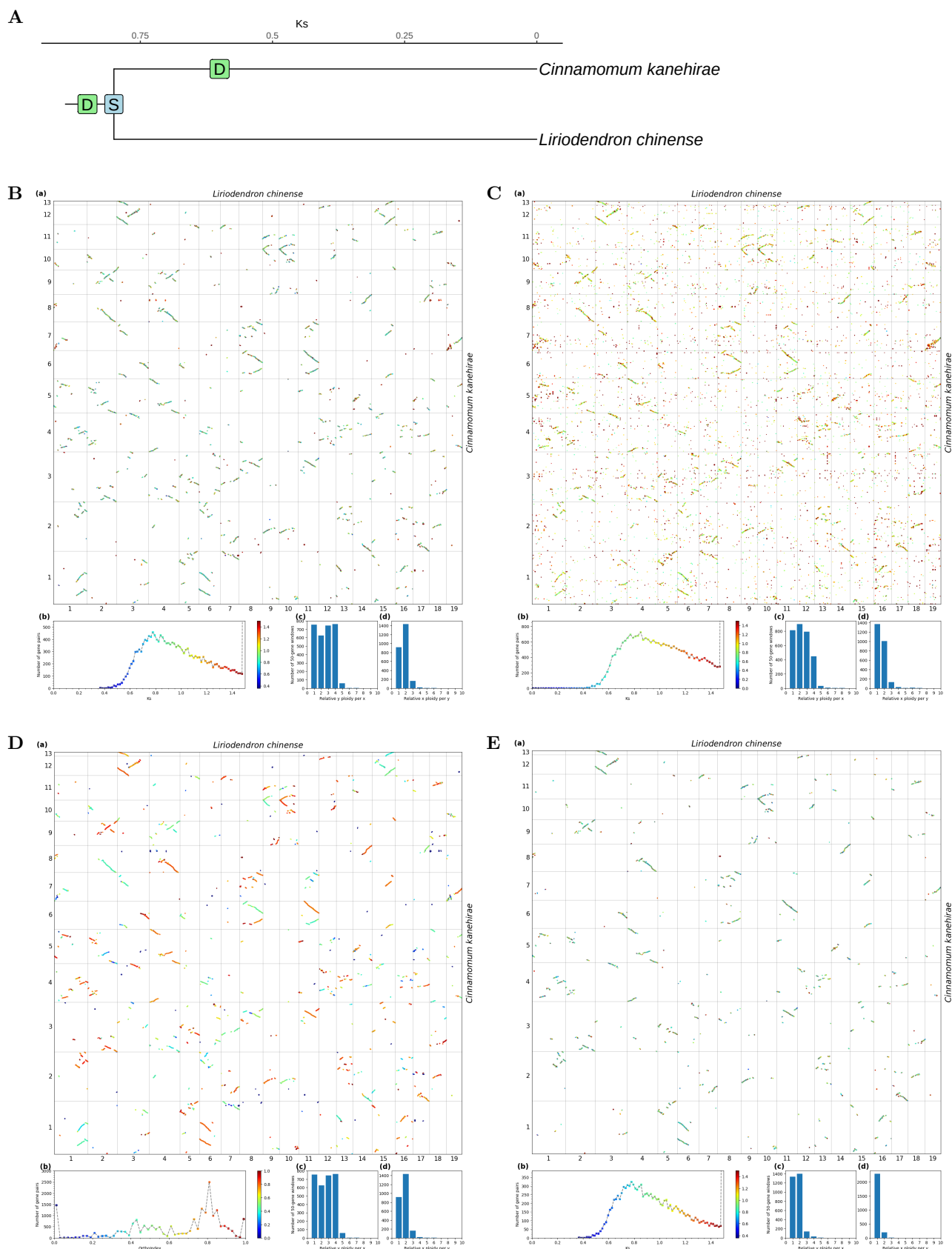


Fig. S 1. Orthology Index in genome evolution of species *Liriodendron chinense* and *Cinnamomum kanehirae*. Refer to Fig.1 for detailed descriptions.

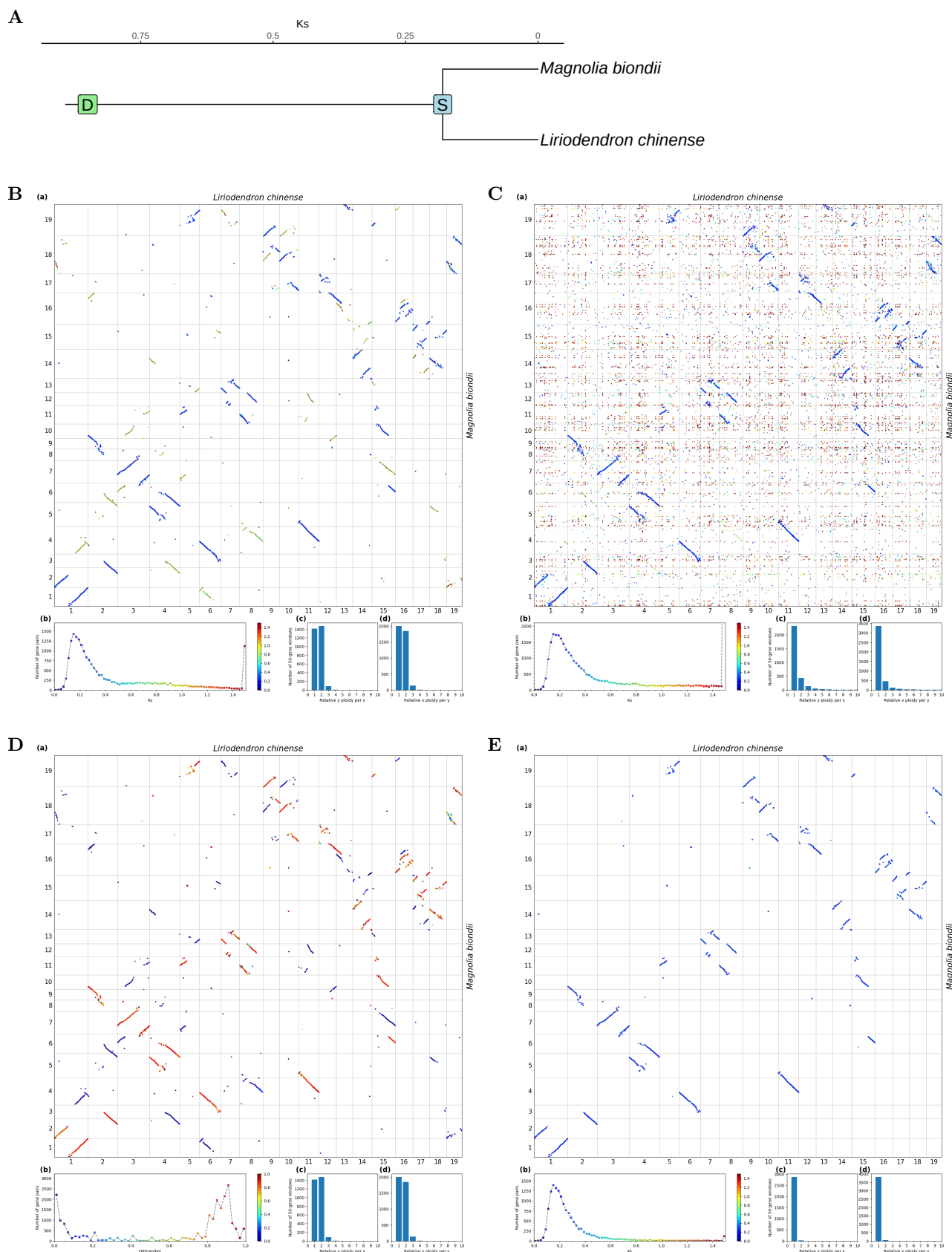


Fig. S 2. Orthology Index in genome evolution of species *Liriodendron chinense* and *Magnolia biondii*. Refer to Fig.1 for detailed descriptions.

A

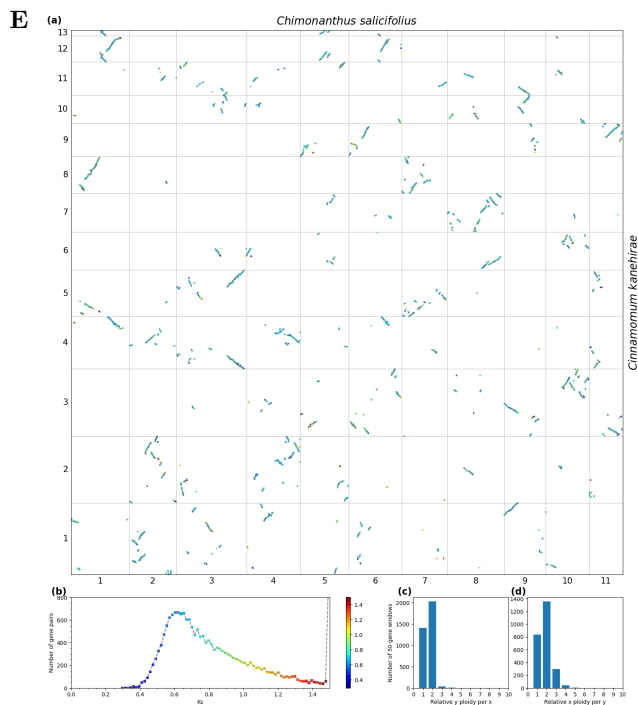
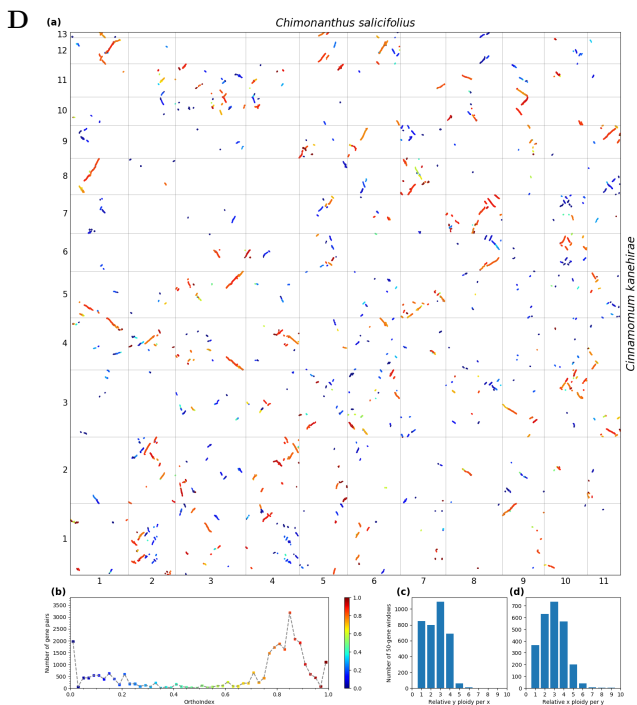
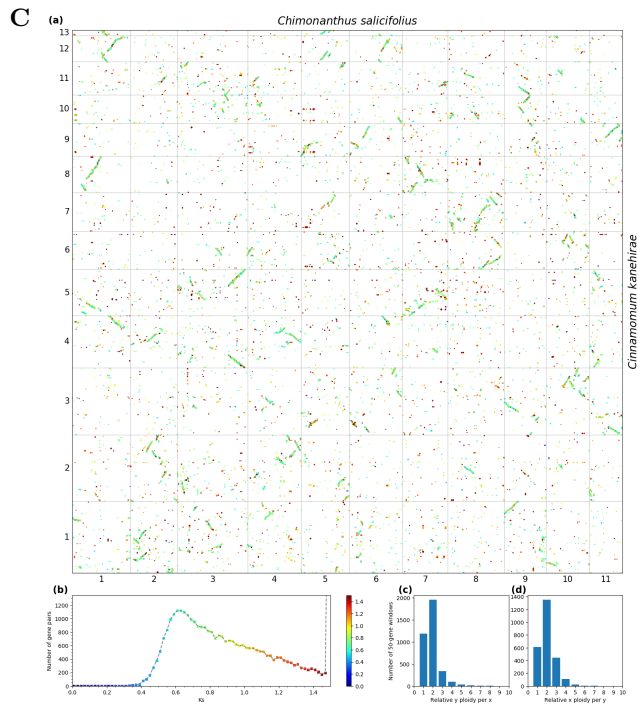
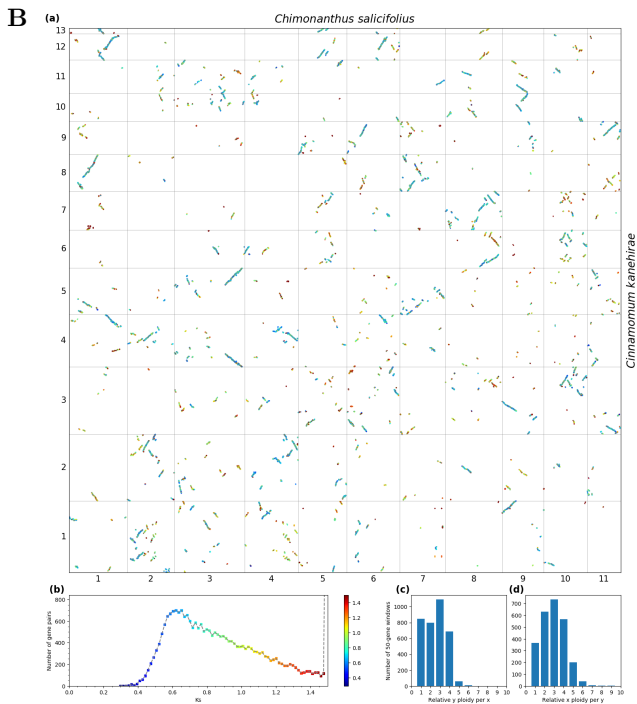
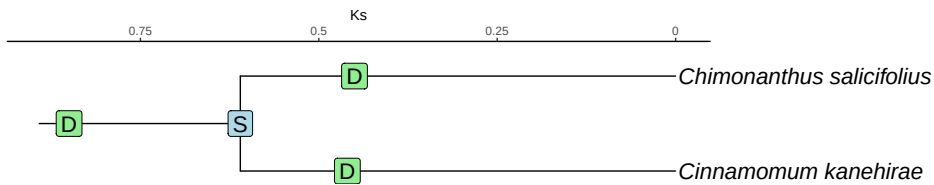


Fig. S 3. *Orthology Index* in genome evolution of species *Cinnamomum kanehirae* and *Chimonanthus salicifolius*. Refer to **Fig.1** for detailed descriptions.

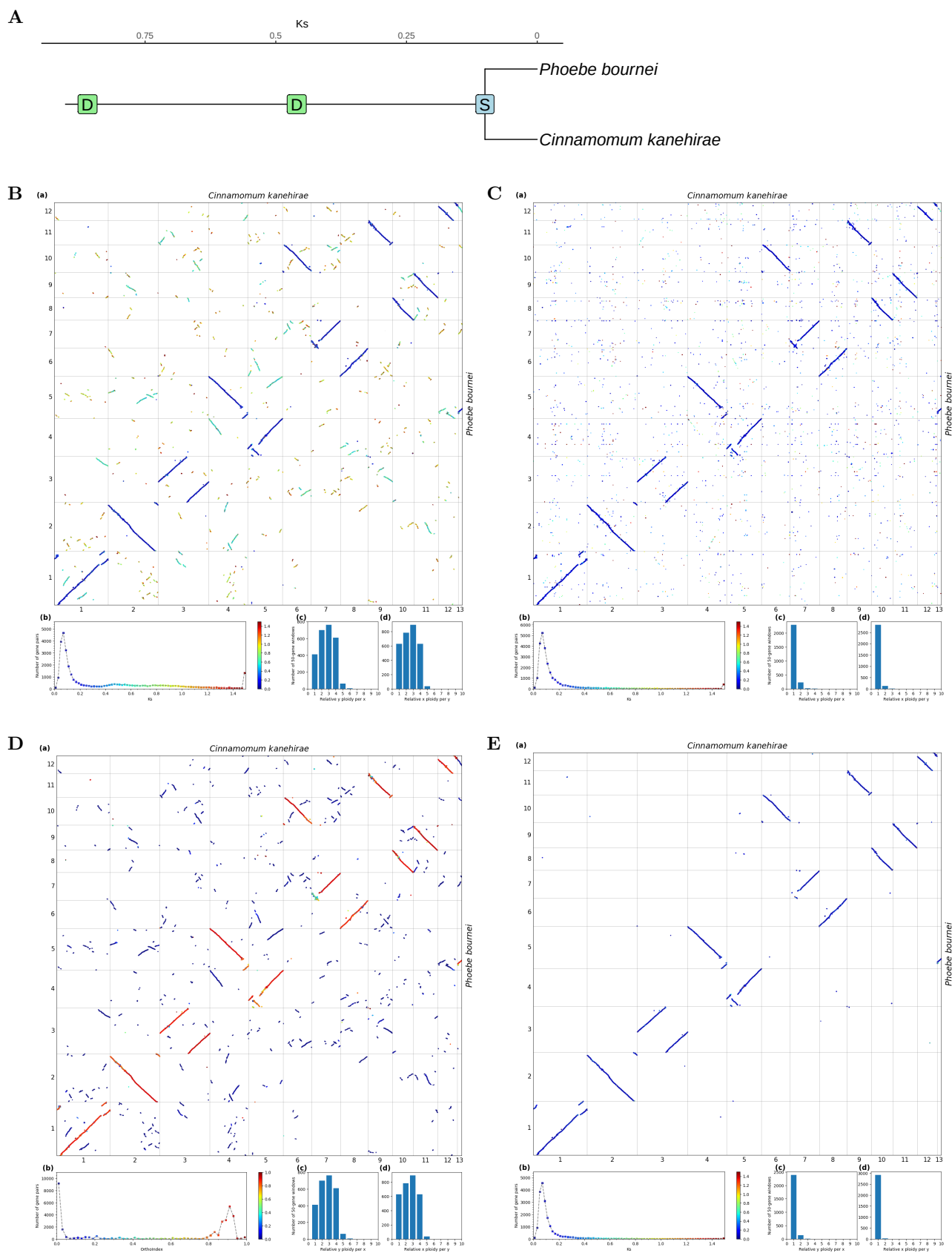


Fig. S 4. Orthology Index in genome evolution of species *Cinnamomum kanehirae* and *Phoebe bournei*. Refer to Fig.1 for detailed descriptions.

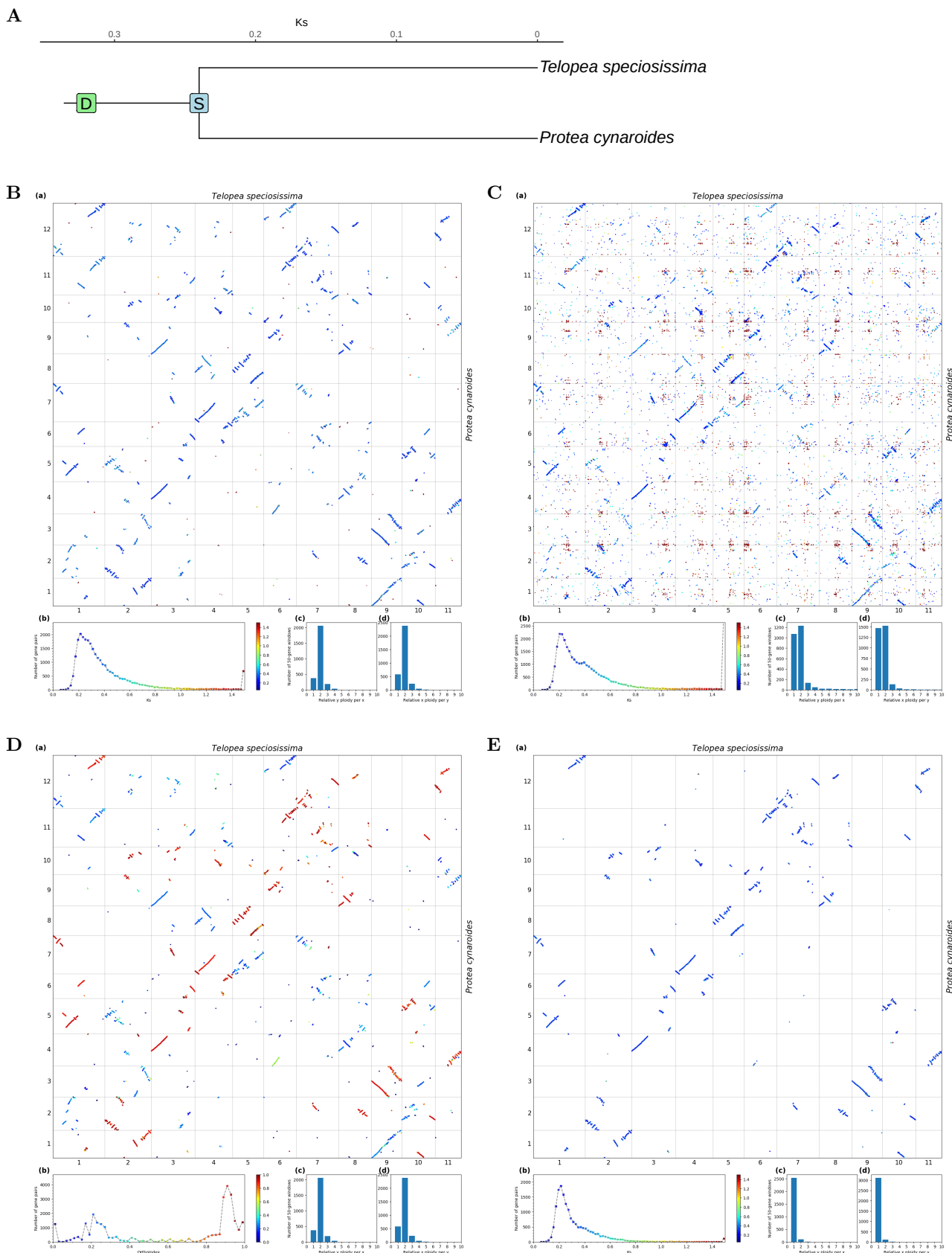


Fig. S 5. Orthology Index in genome evolution of species *Protea cynaroides* and *Telopea speciosissima*. Refer to **Fig.1** for detailed descriptions.

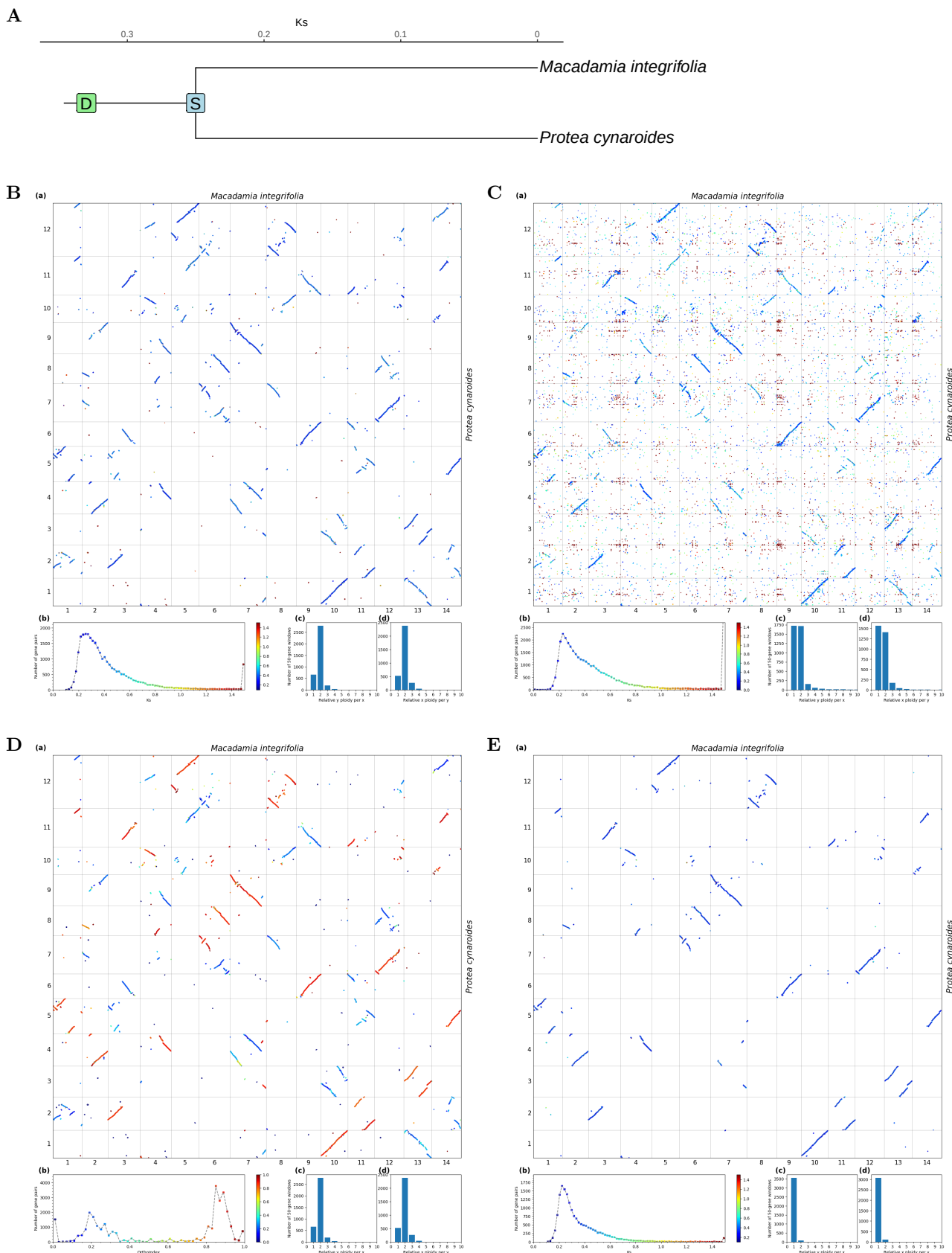


Fig. S 6. Orthology Index in genome evolution of species *Protea cynaroides* and *Macadamia integrifolia*. Refer to **Fig.1** for detailed descriptions.

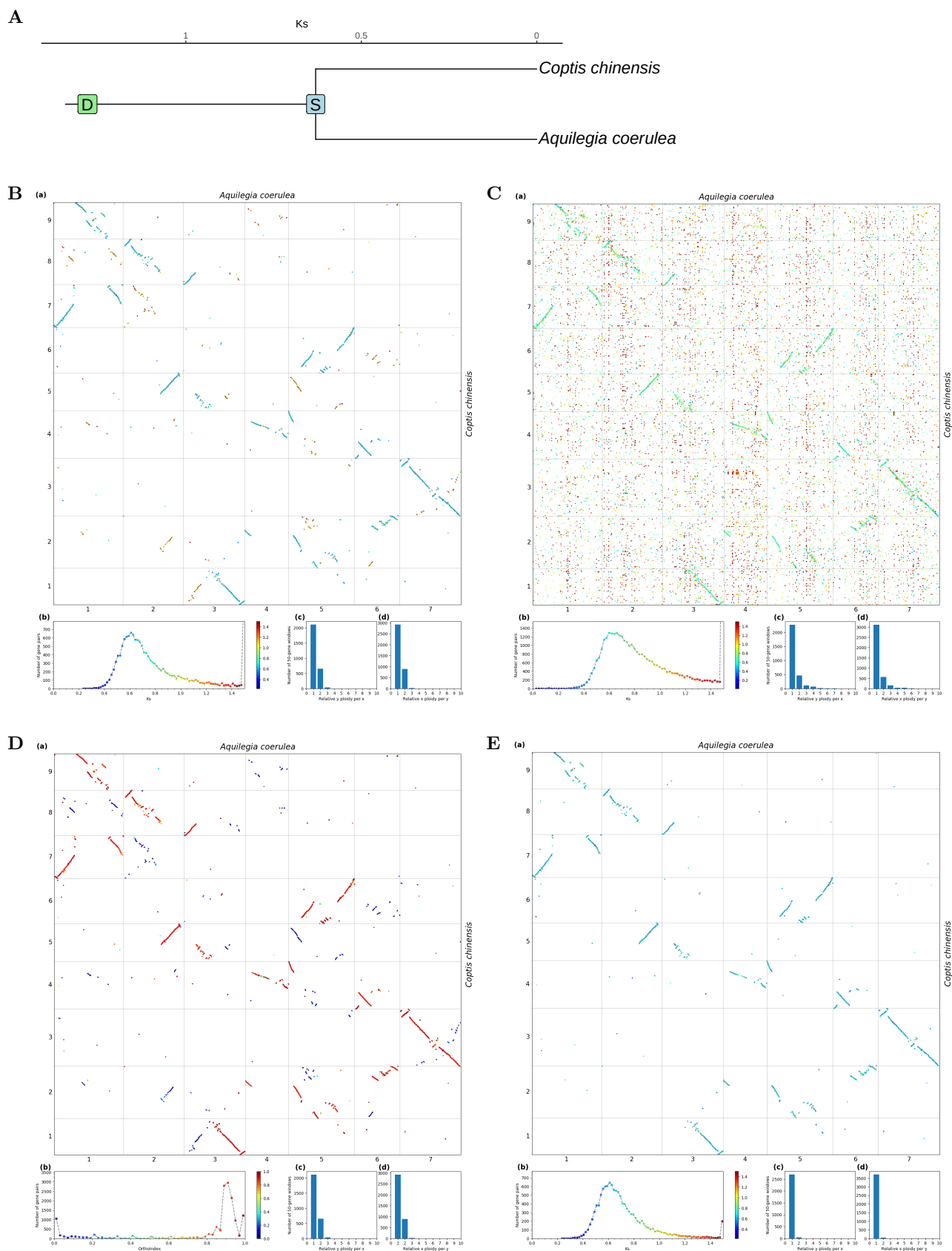


Fig. S 7. Orthology Index in genome evolution of species *Aquilegia coerulea* and *Coptis chinensis*. Refer to Fig.1 for detailed descriptions.

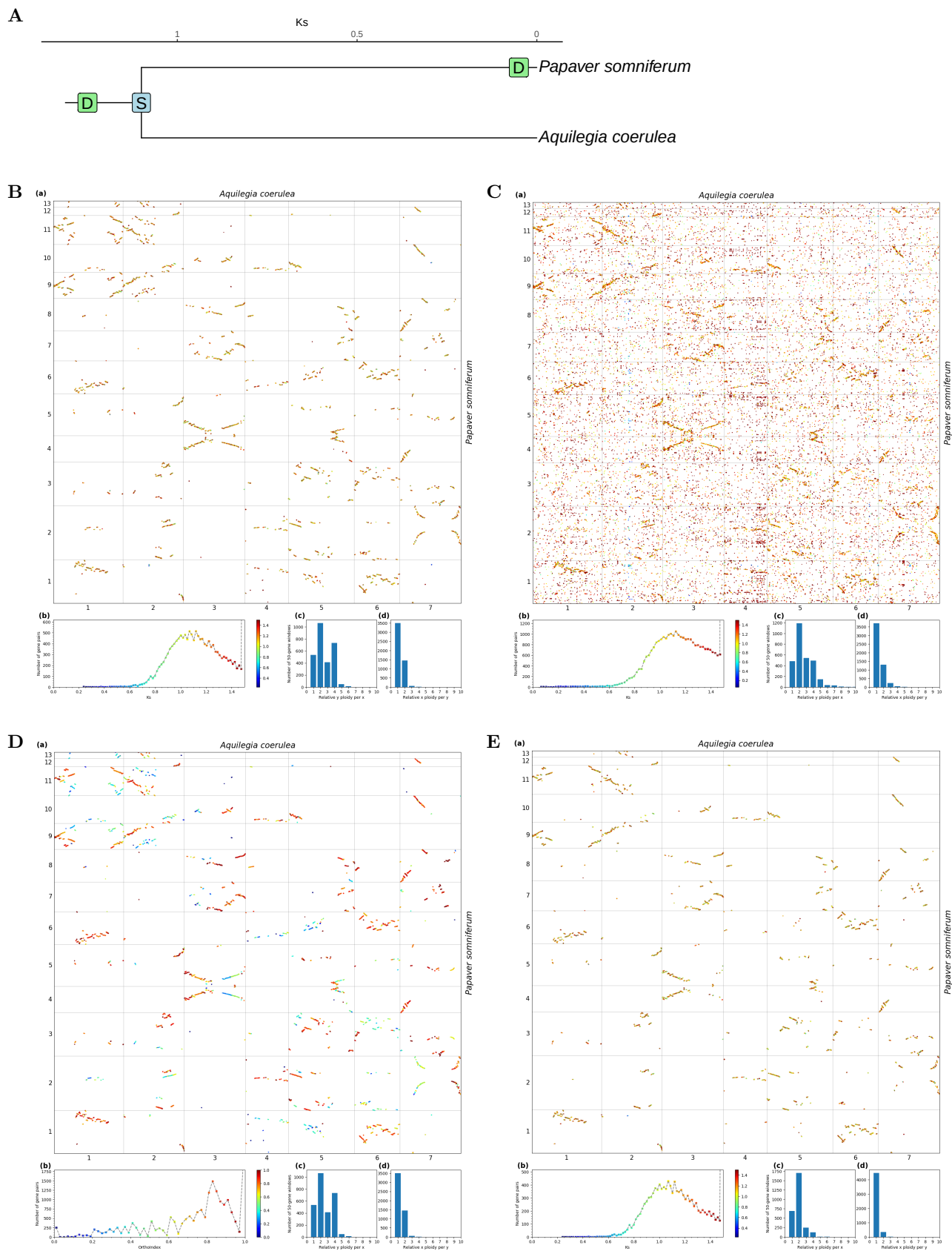


Fig. S 8. Orthology Index in genome evolution of species *Aquilegia coerulea* and *Papaver somniferum*. Refer to **Fig.1** for detailed descriptions.

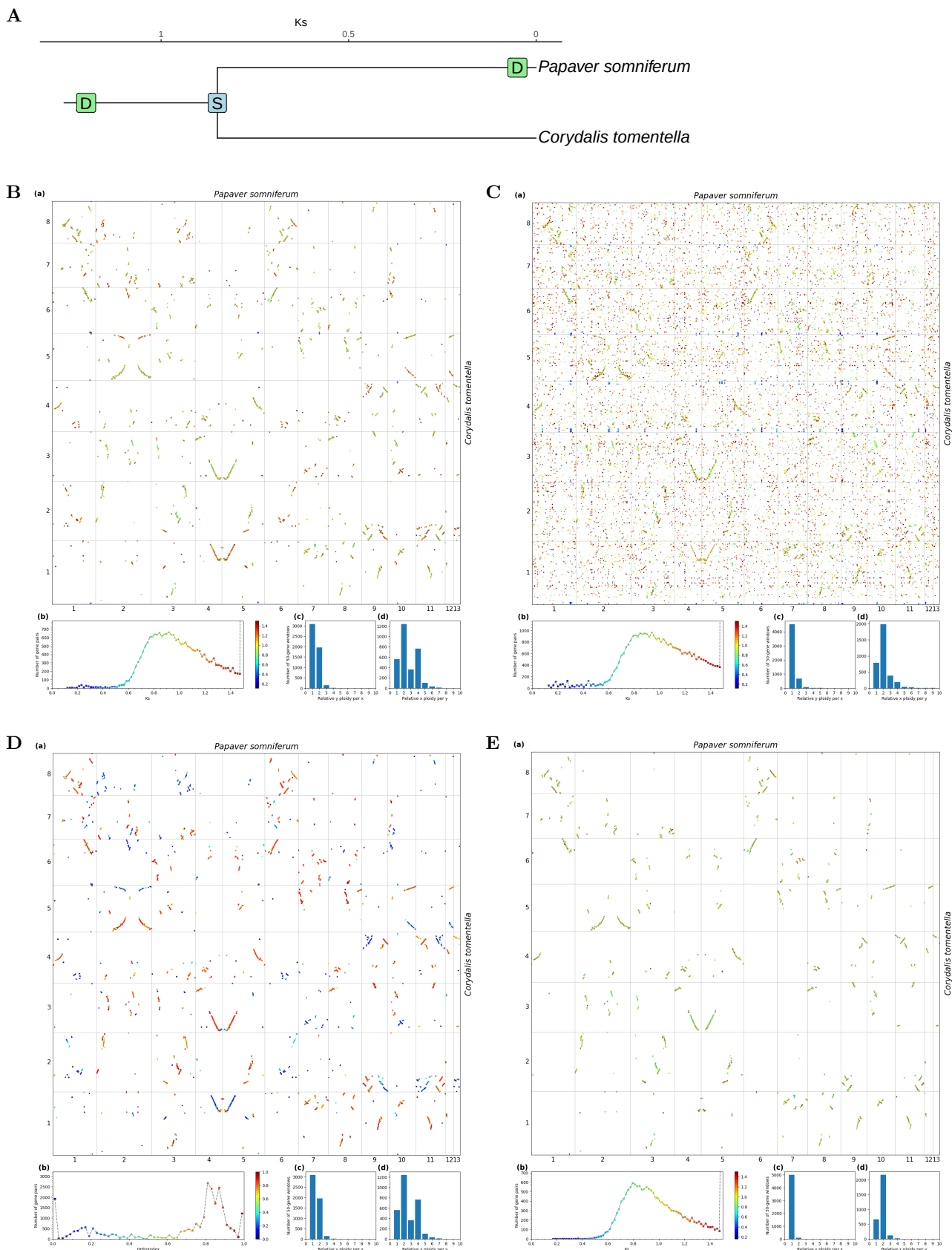


Fig. S 9. Orthology Index in genome evolution of species *Corydalis tomentella* and *Papaver somniferum*. Refer to **Fig.1** for detailed descriptions.

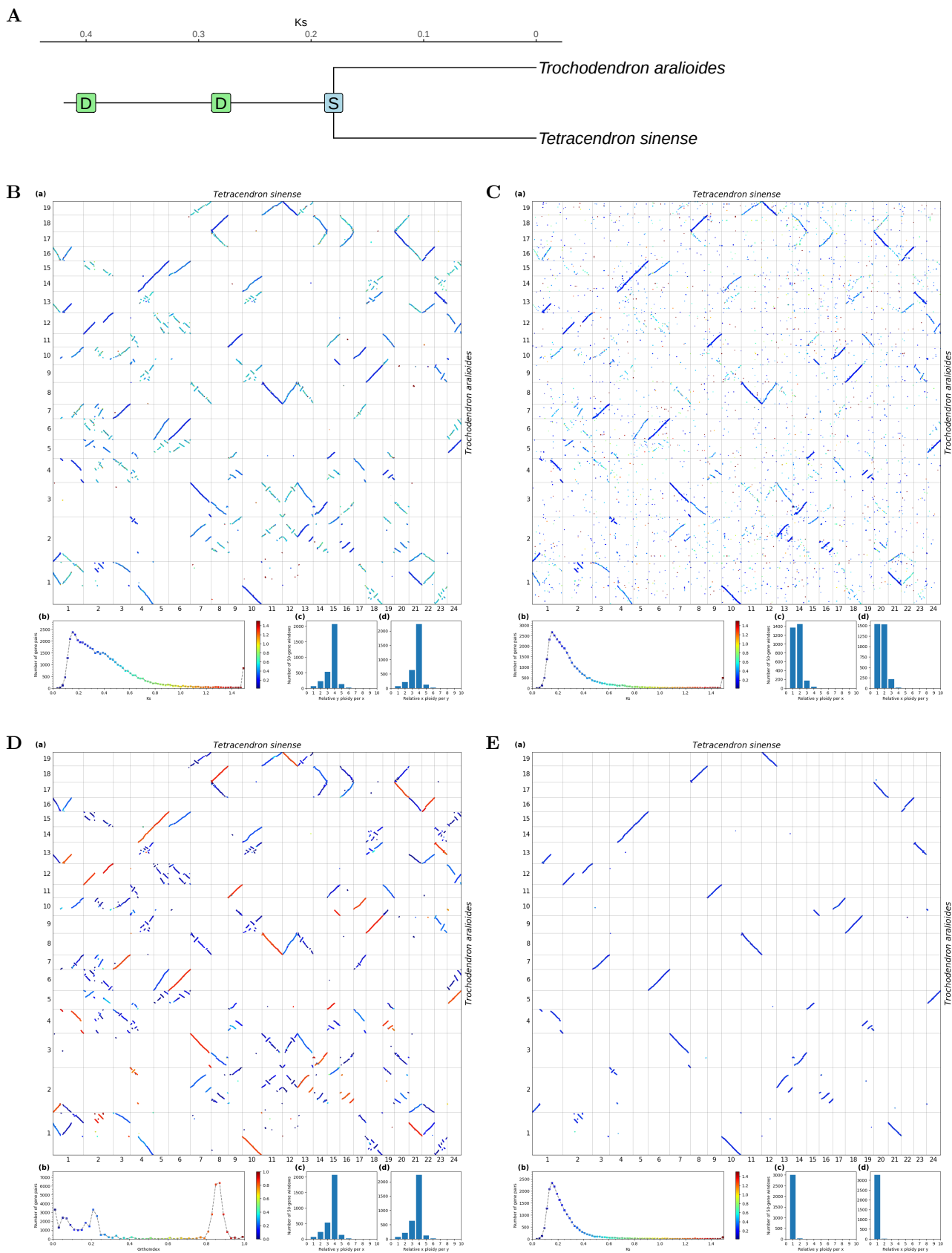


Fig. S 10. Orthology Index in genome evolution of species *Tetracendron sinense* and *Trochodendron aralioides*. Refer to **Fig.1** for detailed descriptions.

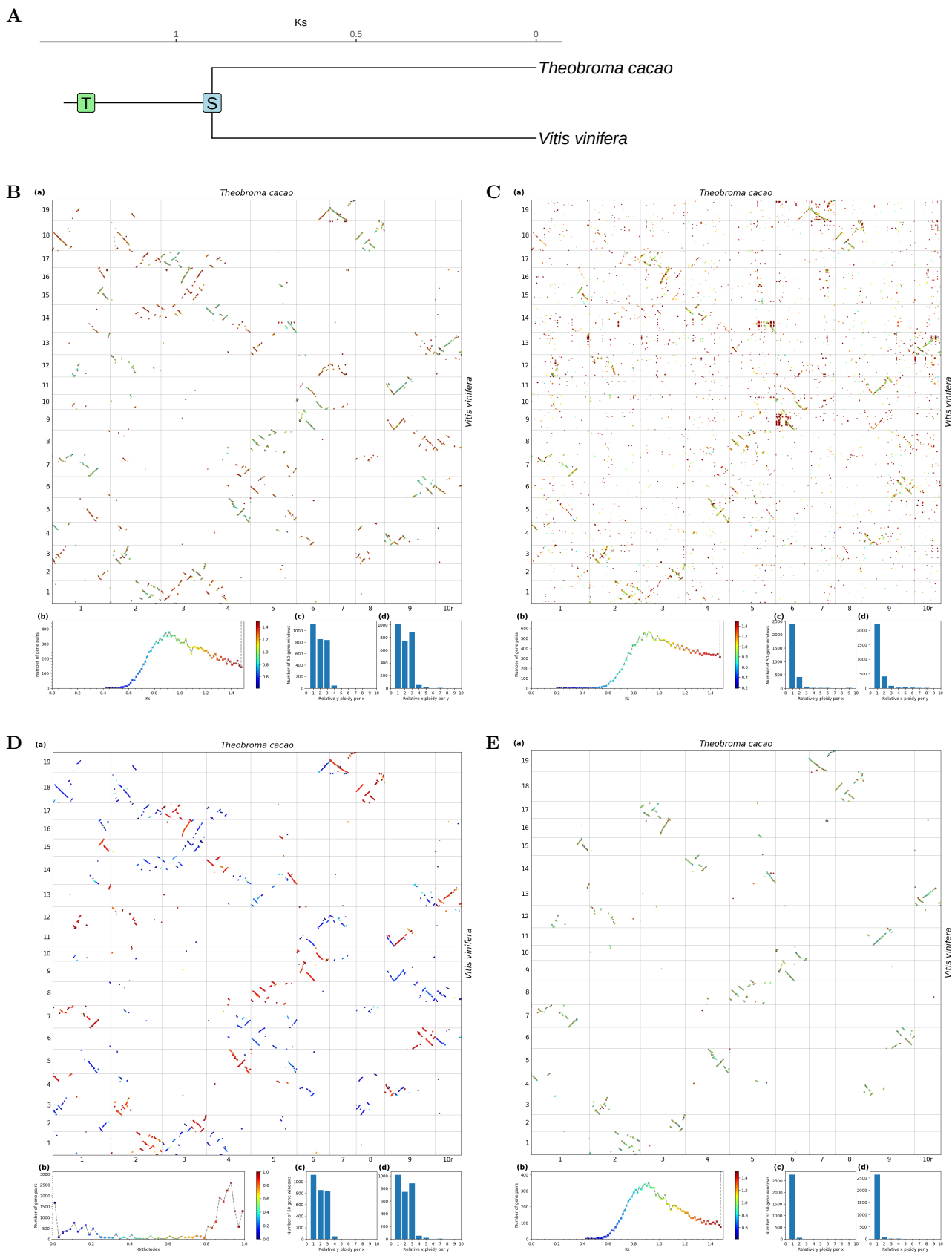


Fig. S 11. Orthology Index in genome evolution of species *Vitis vinifera* and *Theobroma cacao*. Refer to **Fig.1** for detailed descriptions.

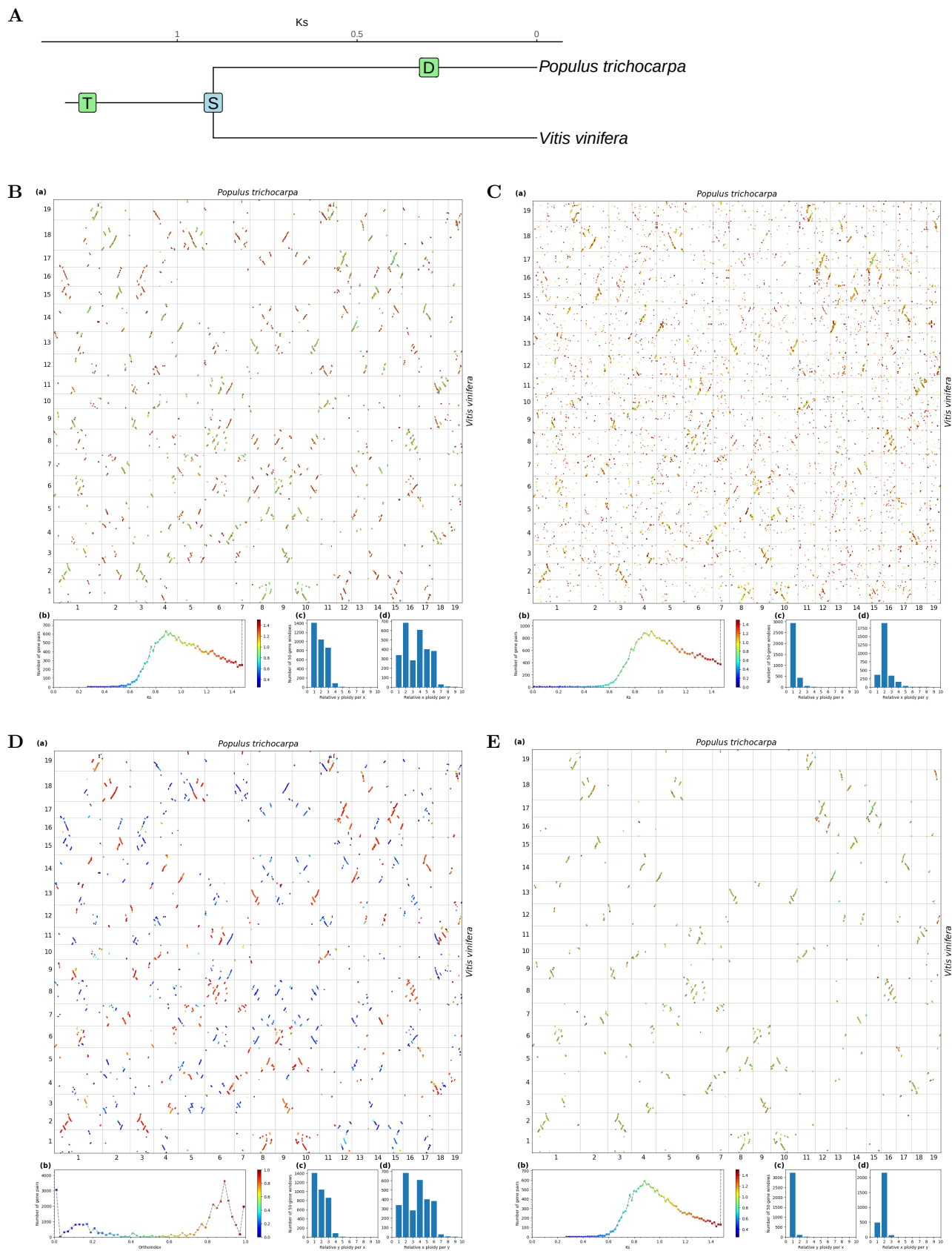


Fig. S 12. Orthology Index in genome evolution of species *Vitis vinifera* and *Populus trichocarpa*. Refer to **Fig.1** for detailed descriptions.

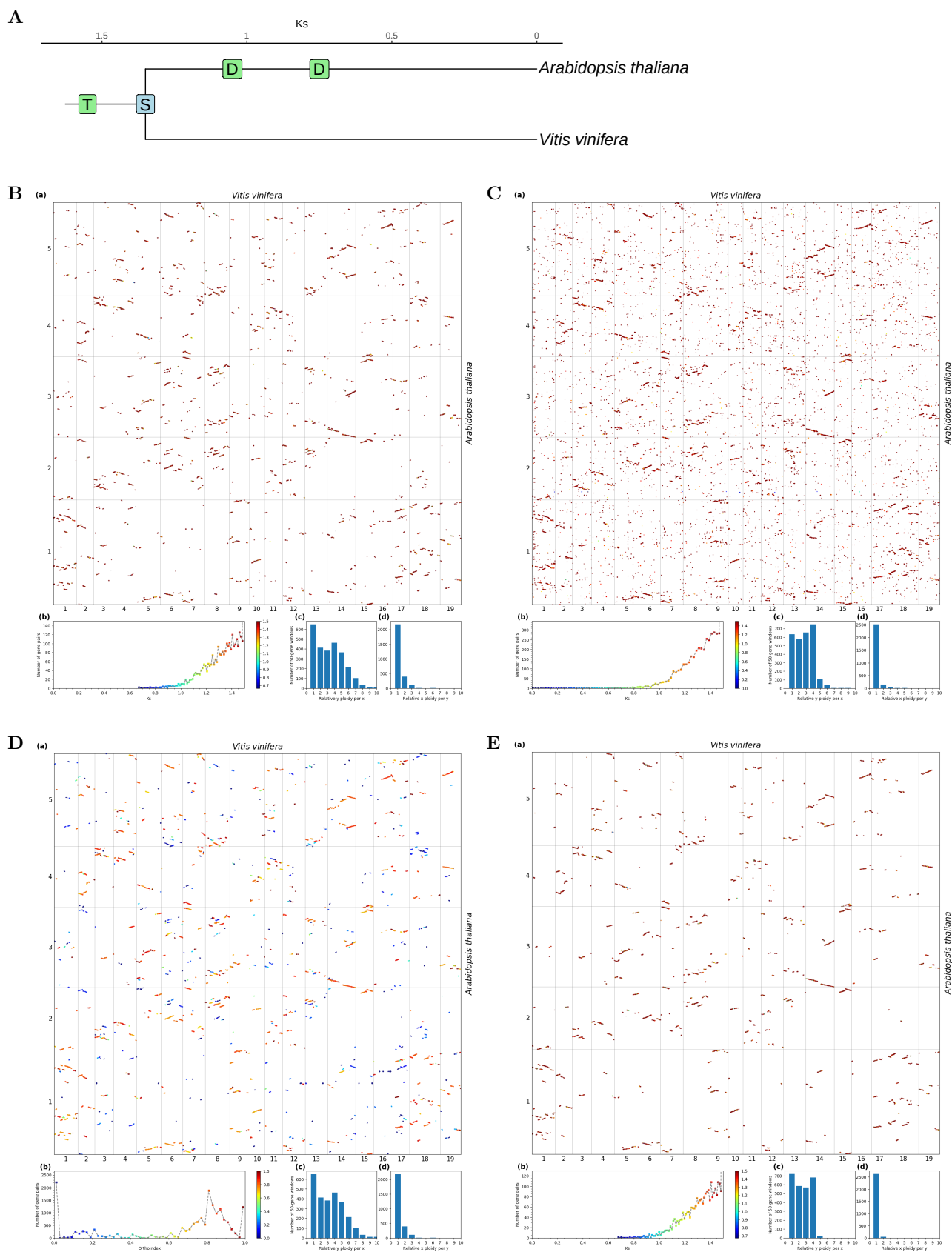


Fig. S 13. Orthology Index in genome evolution of species *Vitis vinifera* and *Arabidopsis thaliana*. Refer to **Fig.1** for detailed descriptions.

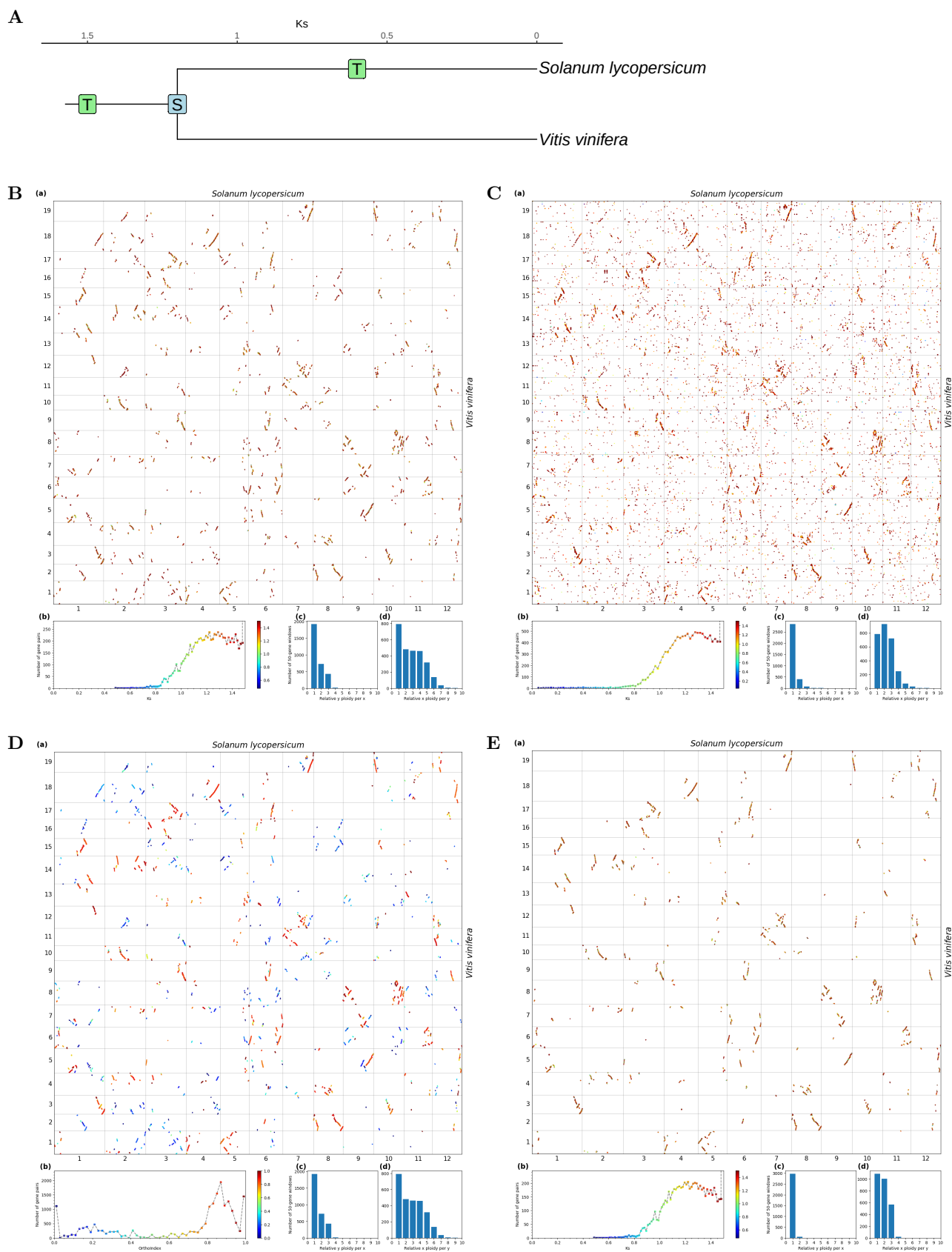


Fig. S 14. Orthology Index in genome evolution of species *Vitis vinifera* and *Solanum lycopersicum*. Refer to **Fig.1** for detailed descriptions.

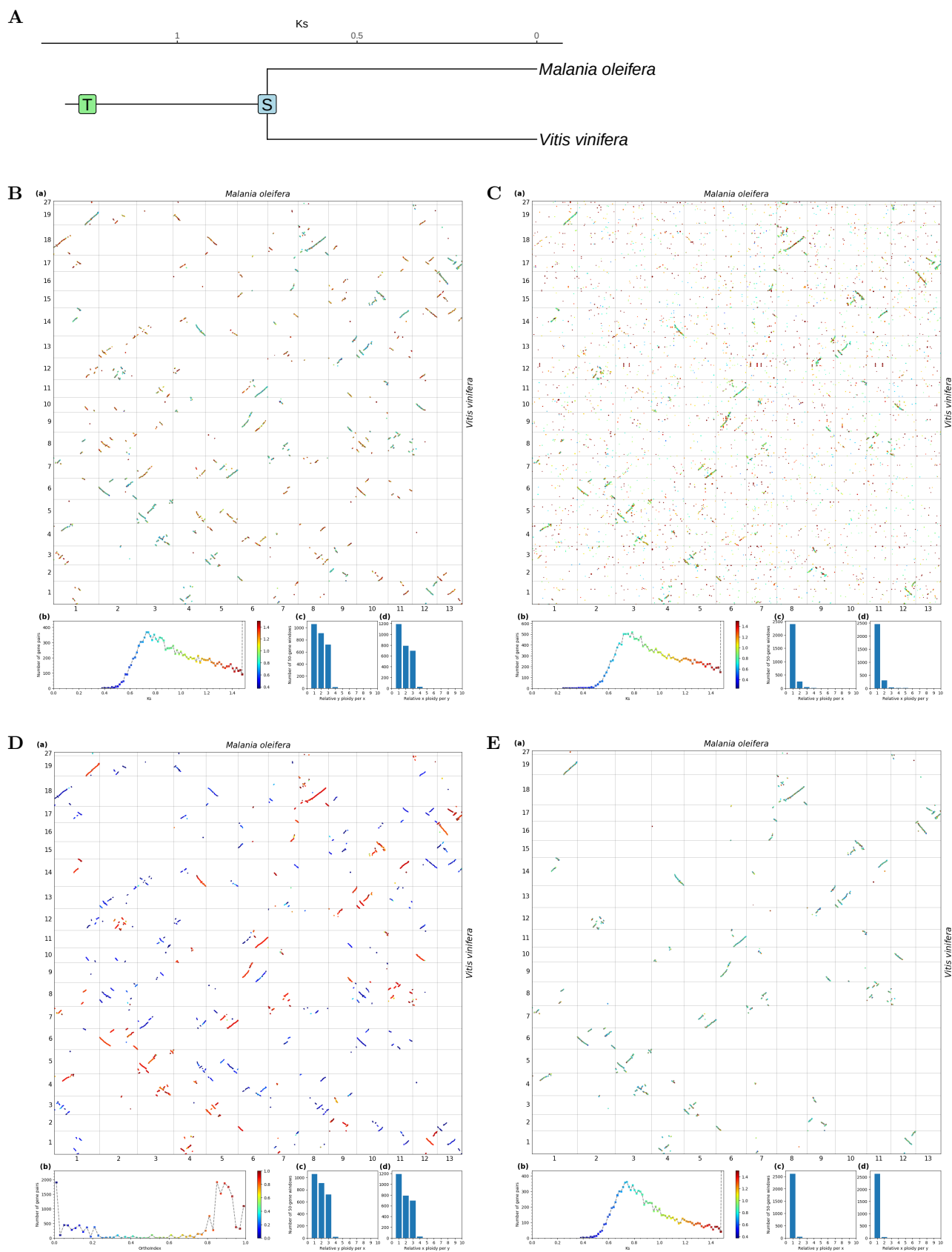


Fig. S 15. Orthology Index in genome evolution of species *Vitis vinifera* and *Malania oleifera*. Refer to **Fig.1** for detailed descriptions.

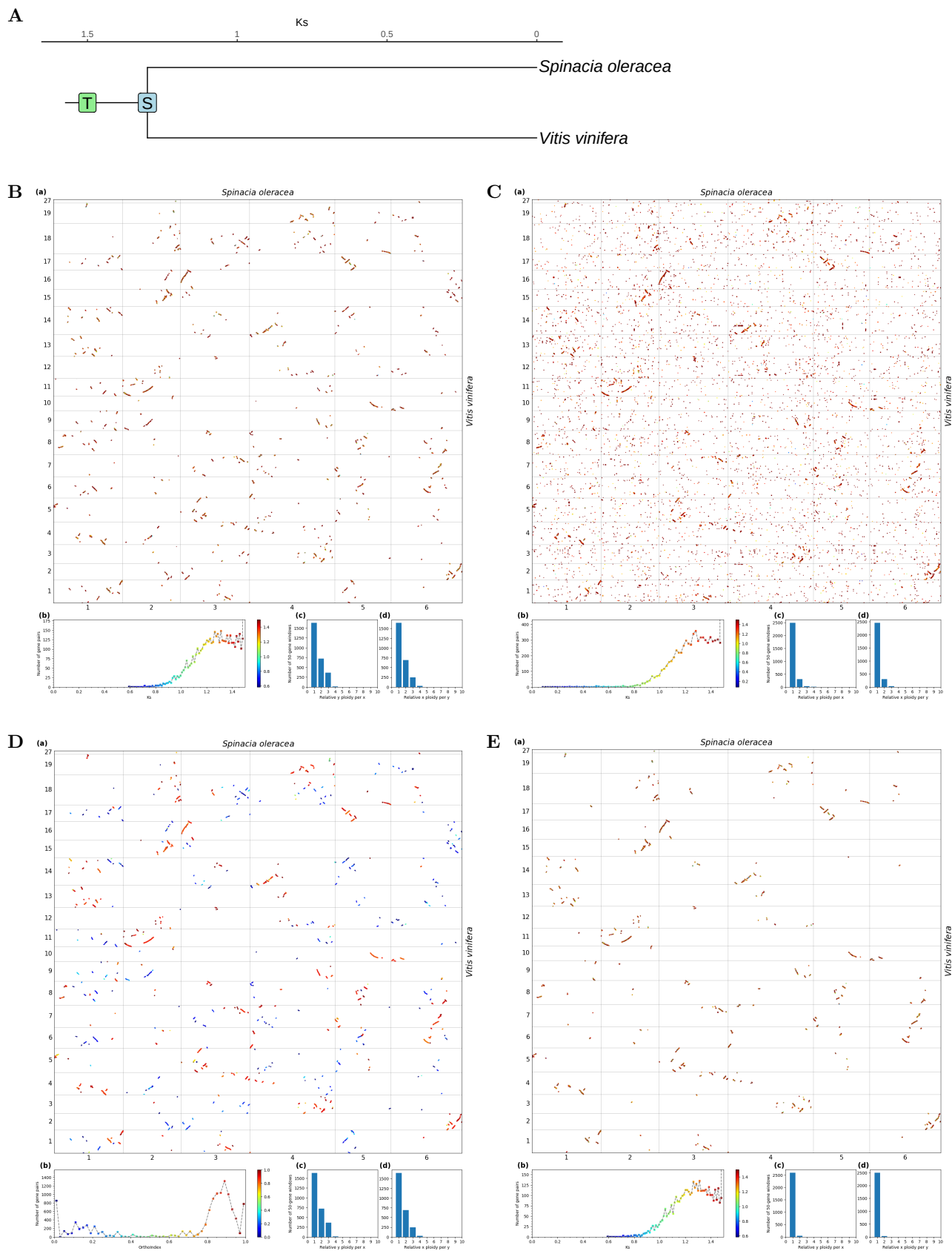


Fig. S 16. Orthology Index in genome evolution of species *Vitis vinifera* and *Spinacia oleracea*. Refer to **Fig.1** for detailed descriptions.

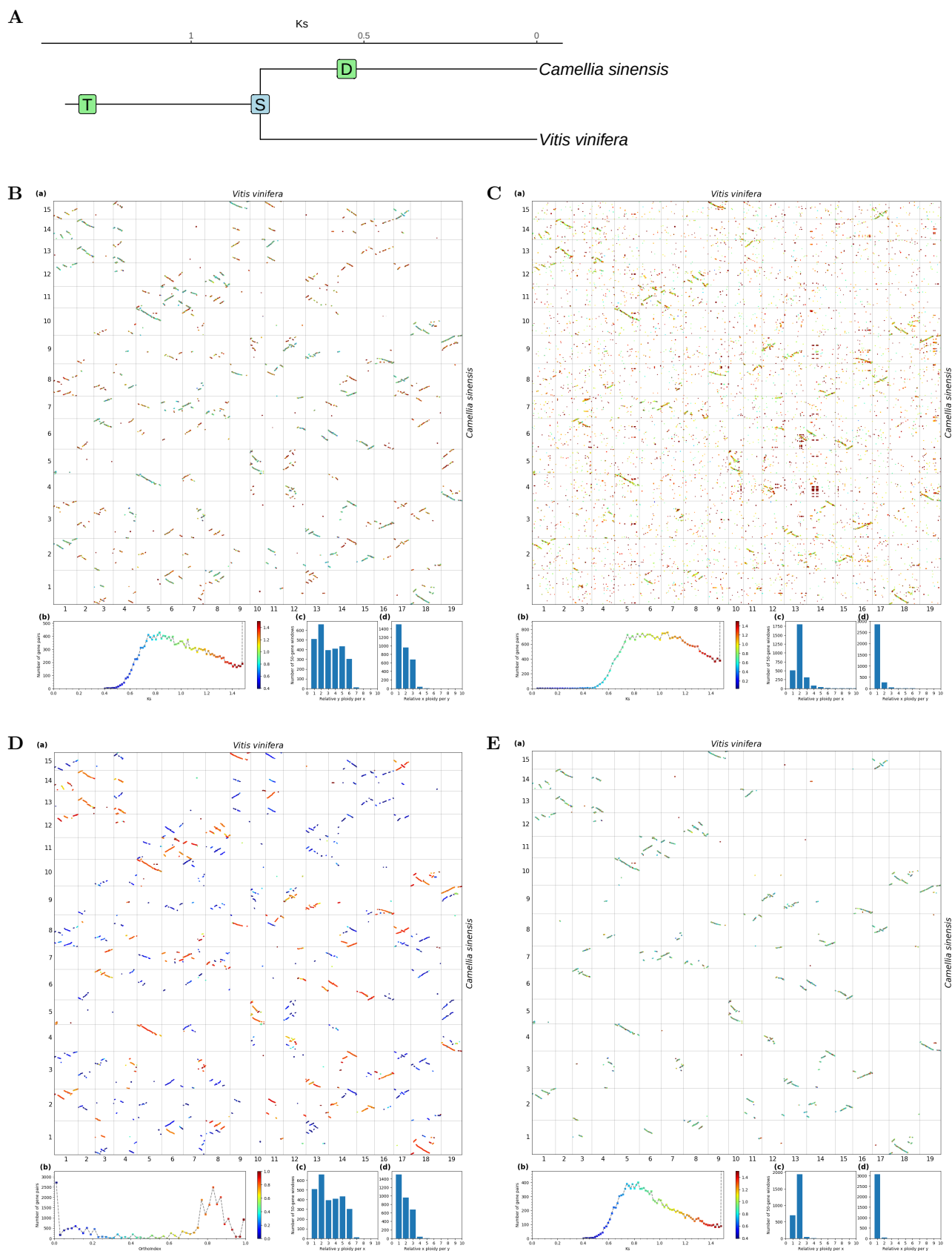


Fig. S 17. Orthology Index in genome evolution of species *Vitis vinifera* and *Camellia sinensis*. Refer to **Fig.1** for detailed descriptions.

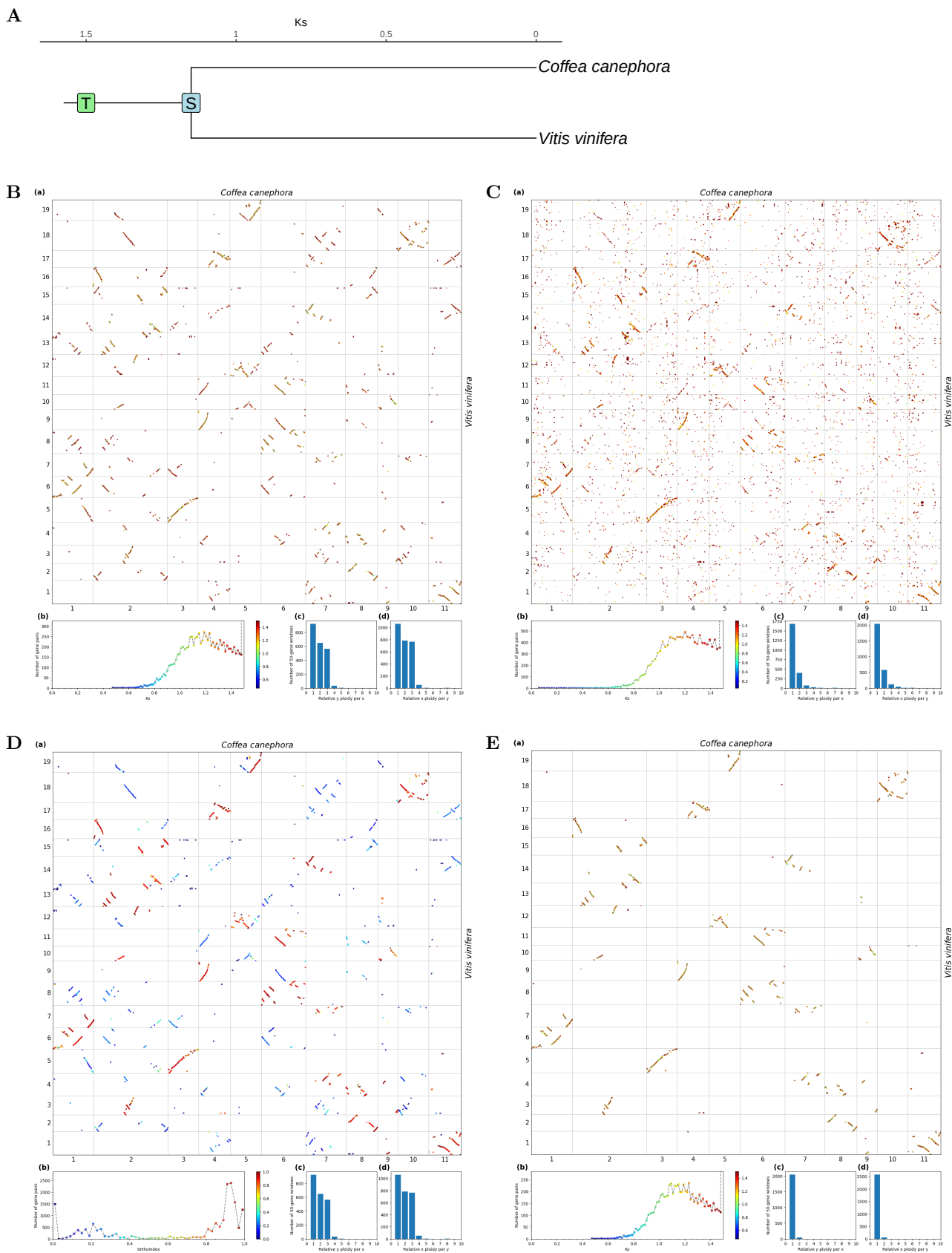


Fig. S 18. Orthology Index in genome evolution of species *Vitis vinifera* and *Coffea canephora*. Refer to **Fig.1** for detailed descriptions.

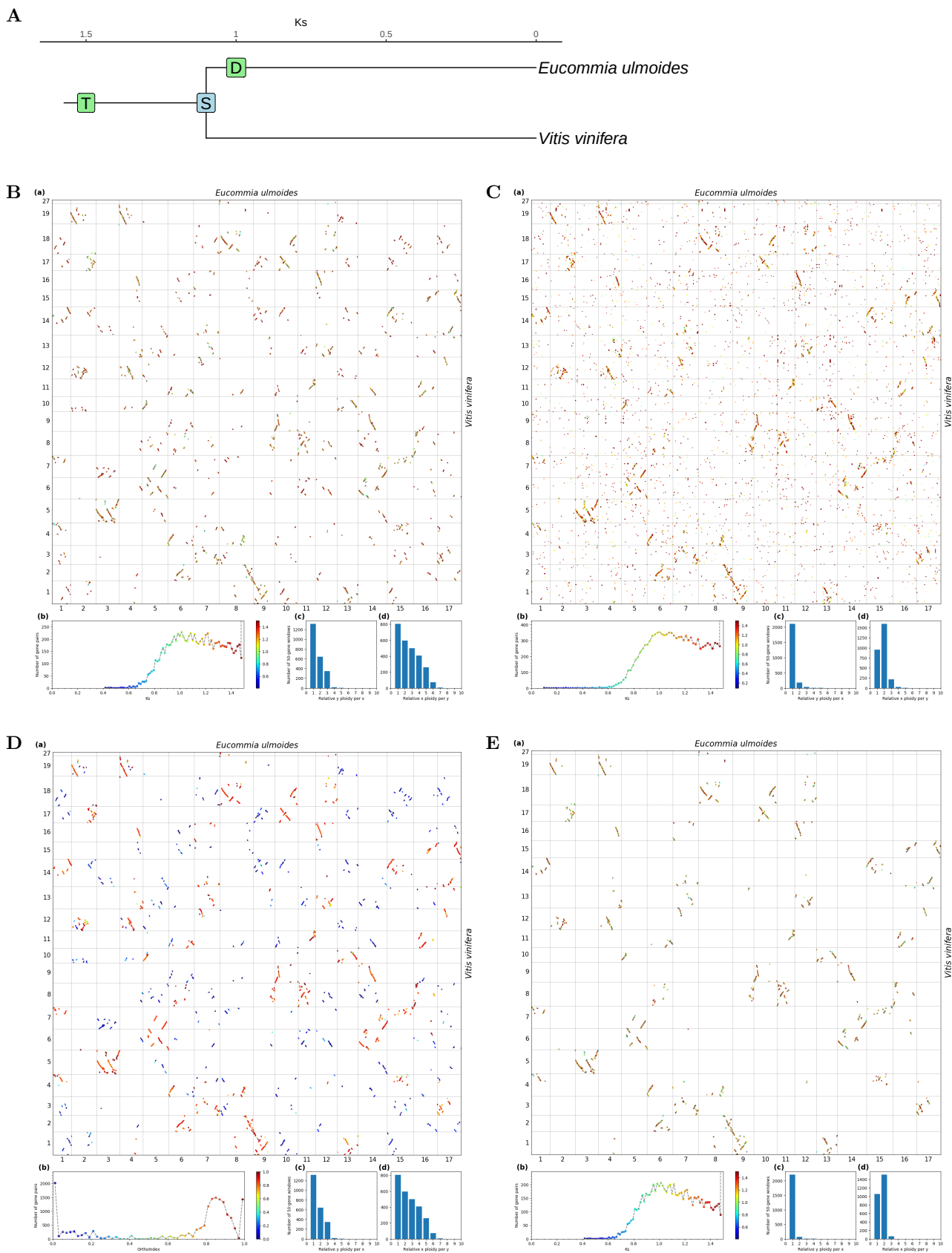


Fig. S 19. Orthology Index in genome evolution of species *Vitis vinifera* and *Eucommia ulmoides*. Refer to **Fig.1** for detailed descriptions.

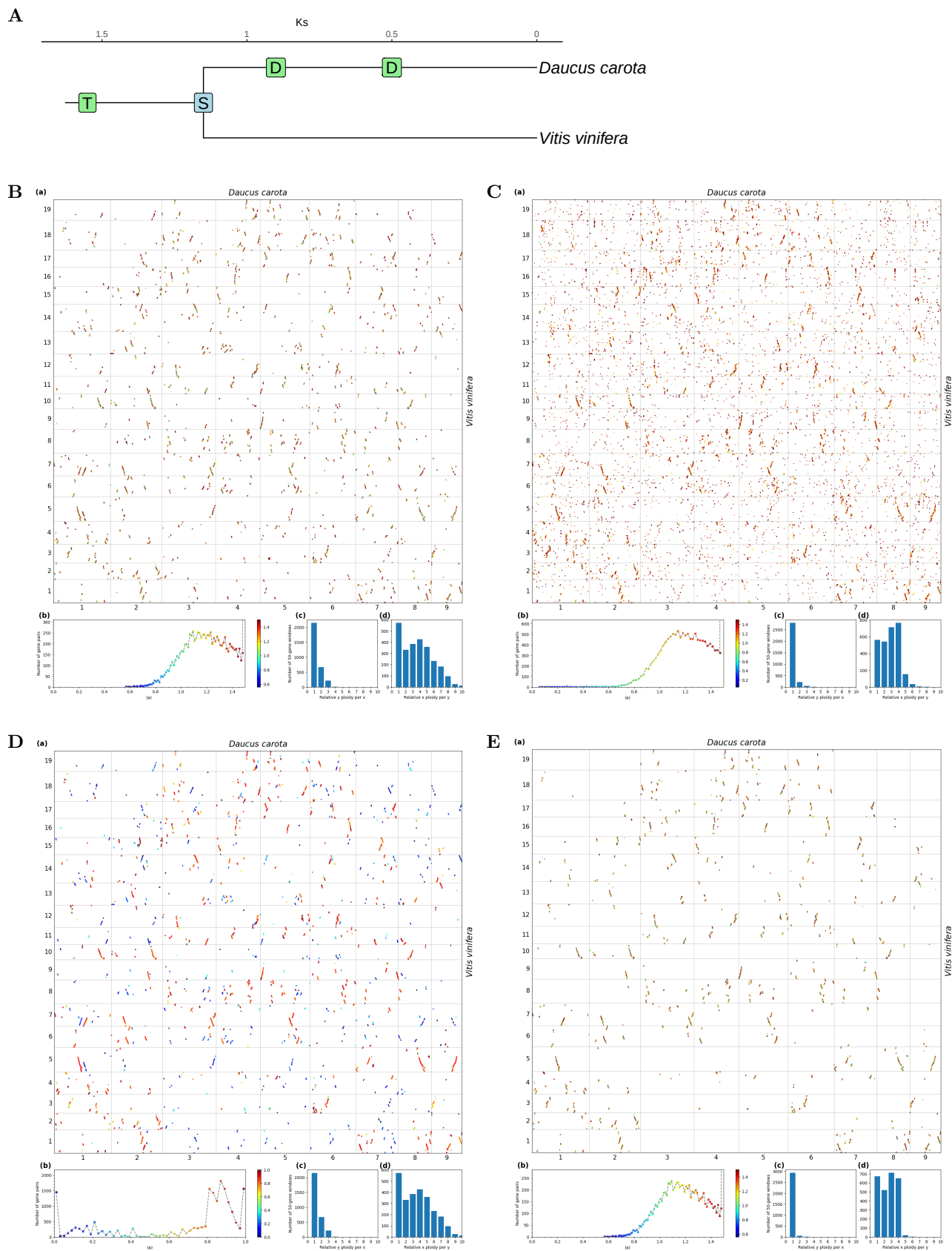


Fig. S 20. Orthology Index in genome evolution of species *Vitis vinifera* and *Daucus carota*. Refer to **Fig.1** for detailed descriptions.

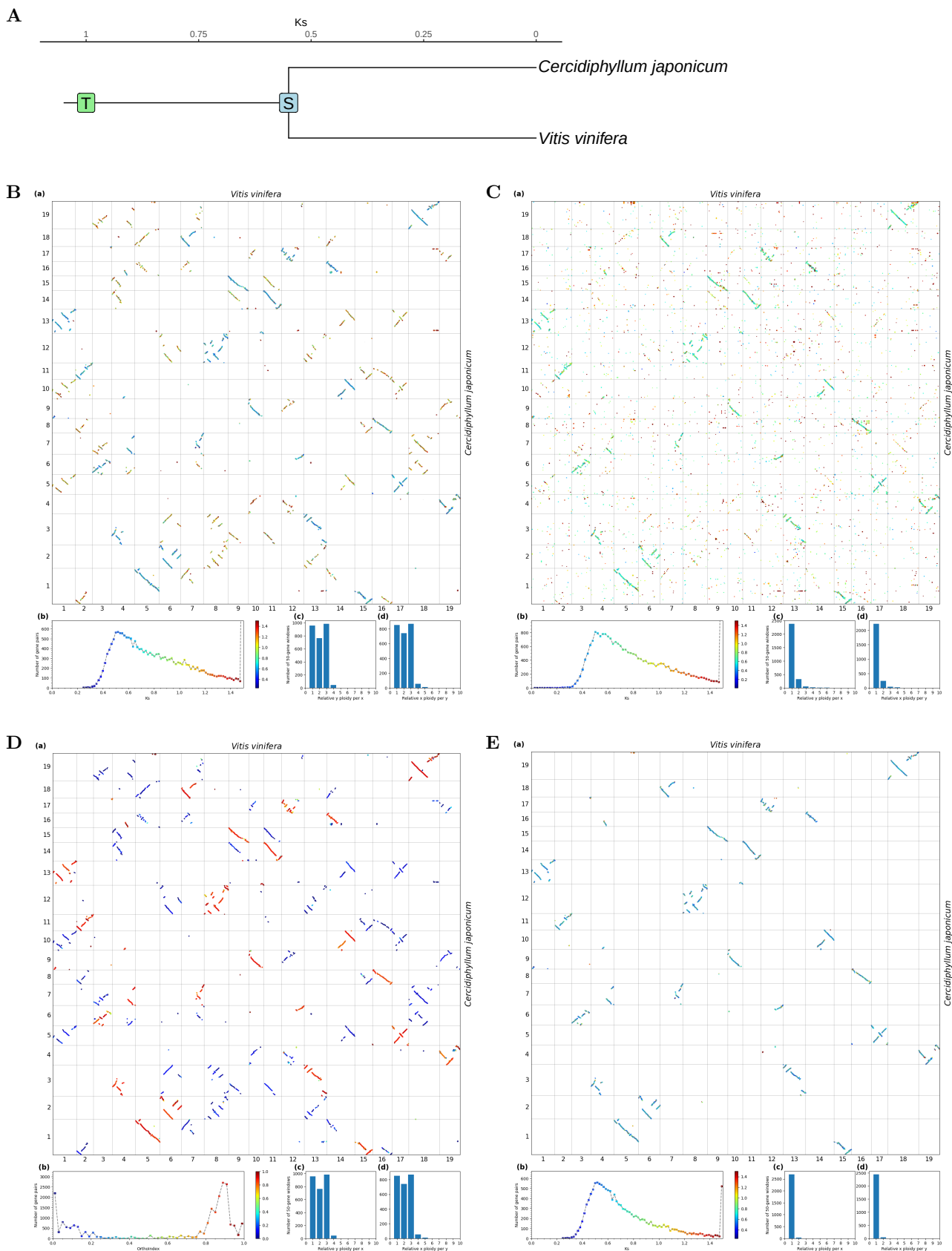


Fig. S 21. Orthology Index in genome evolution of species *Vitis vinifera* and *Cercidiphyllum japonicum*. Refer to Fig.1 for detailed descriptions.

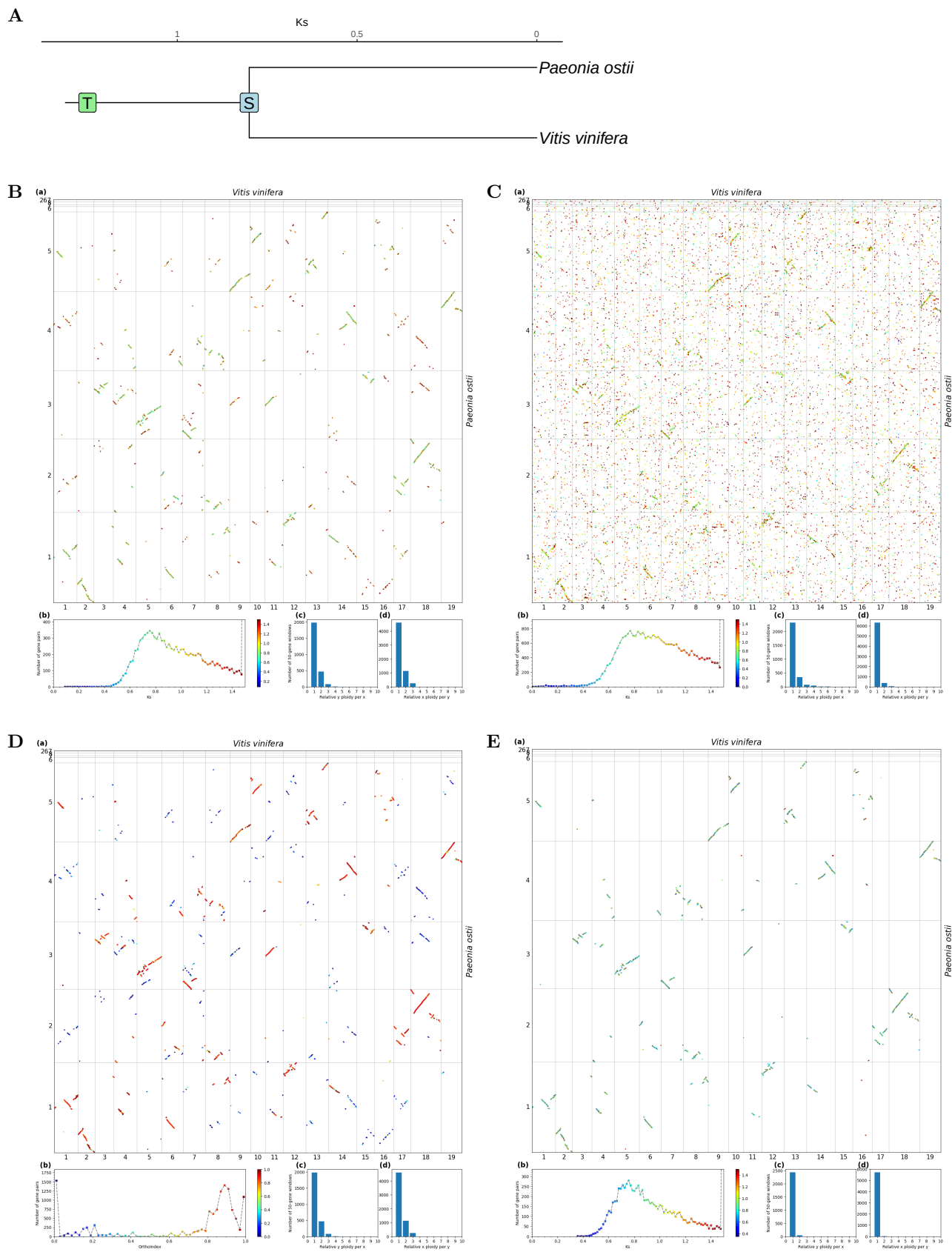


Fig. S 22. Orthology Index in genome evolution of species *Vitis vinifera* and *Paeonia ostii*. Refer to **Fig.1** for detailed descriptions.

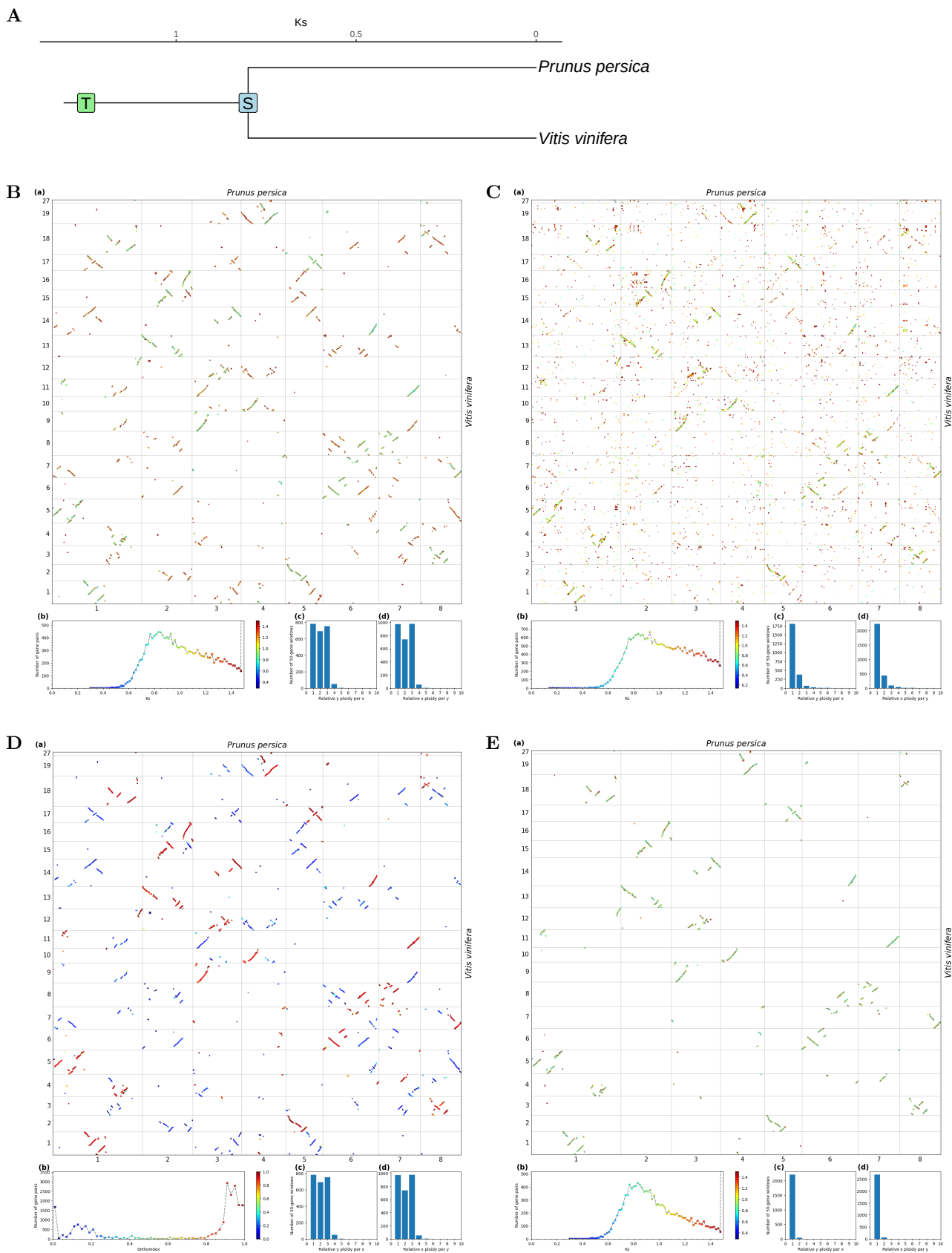


Fig. S 23. Orthology Index in genome evolution of species *Vitis vinifera* and *Prunus persica*. Refer to **Fig.1** for detailed descriptions.

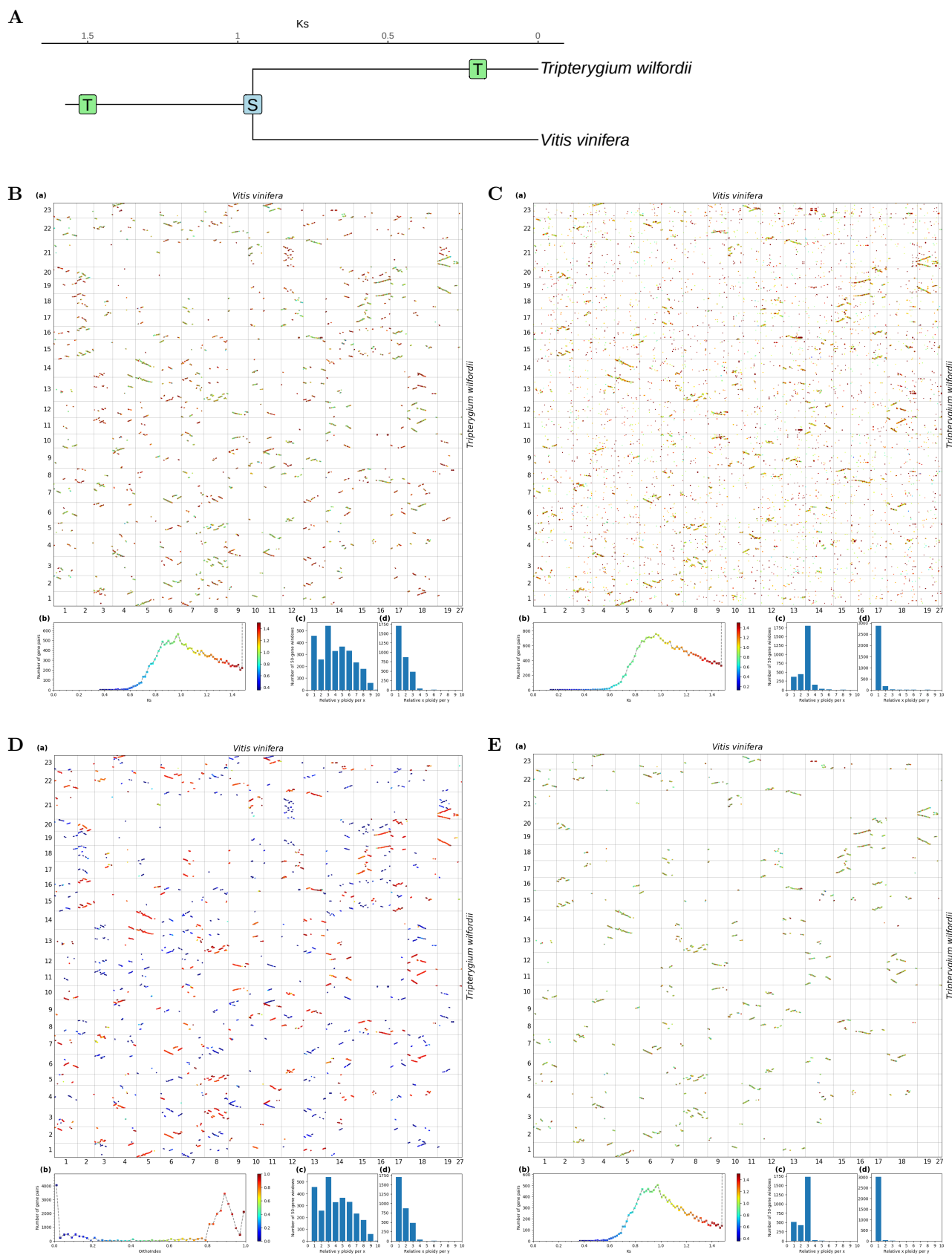


Fig. S 24. Orthology Index in genome evolution of species *Vitis vinifera* and *Tripterygium wilfordii*. Refer to **Fig.1** for detailed descriptions.

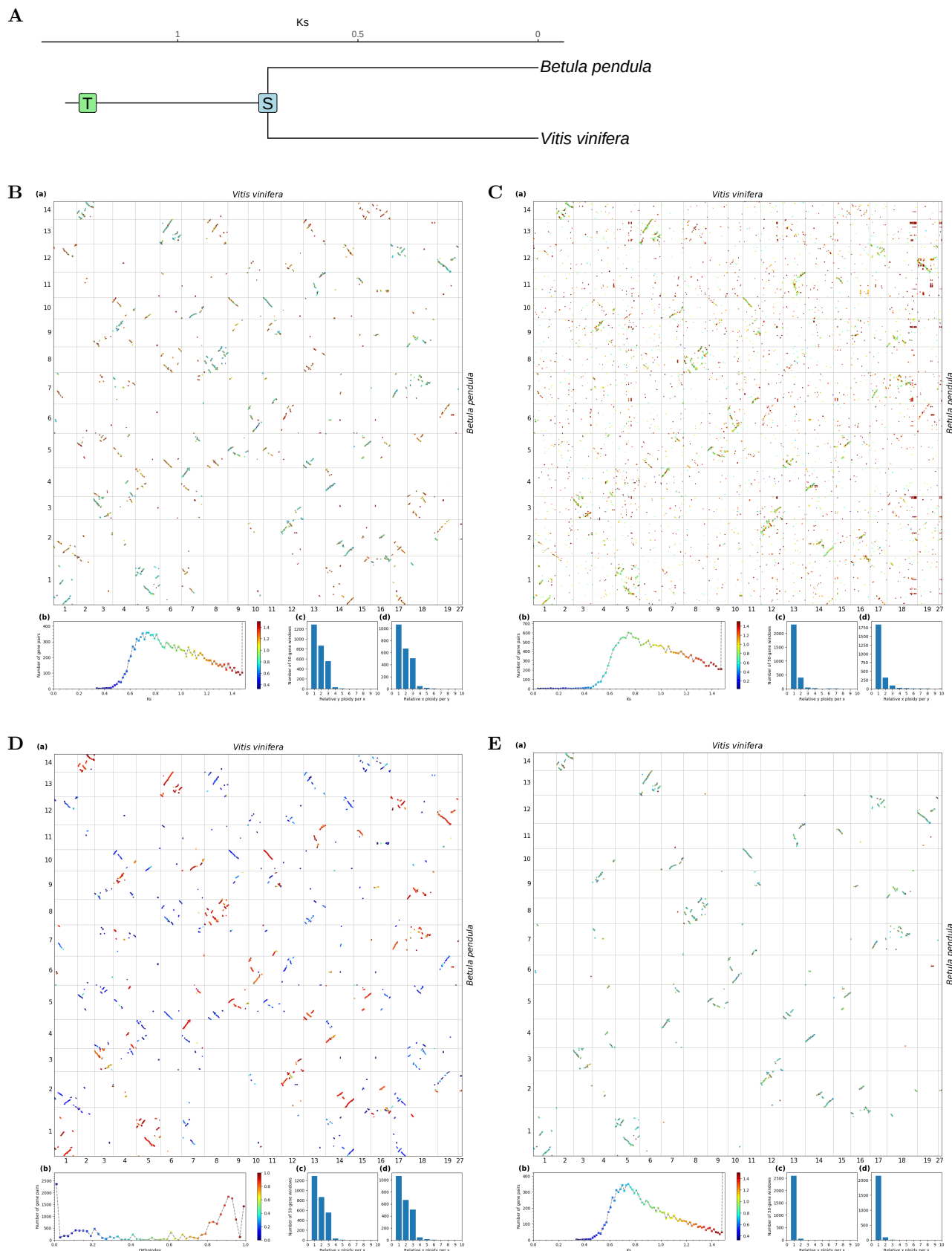


Fig. S 25. Orthology Index in genome evolution of species *Vitis vinifera* and *Betula pendula*. Refer to **Fig.1** for detailed descriptions.

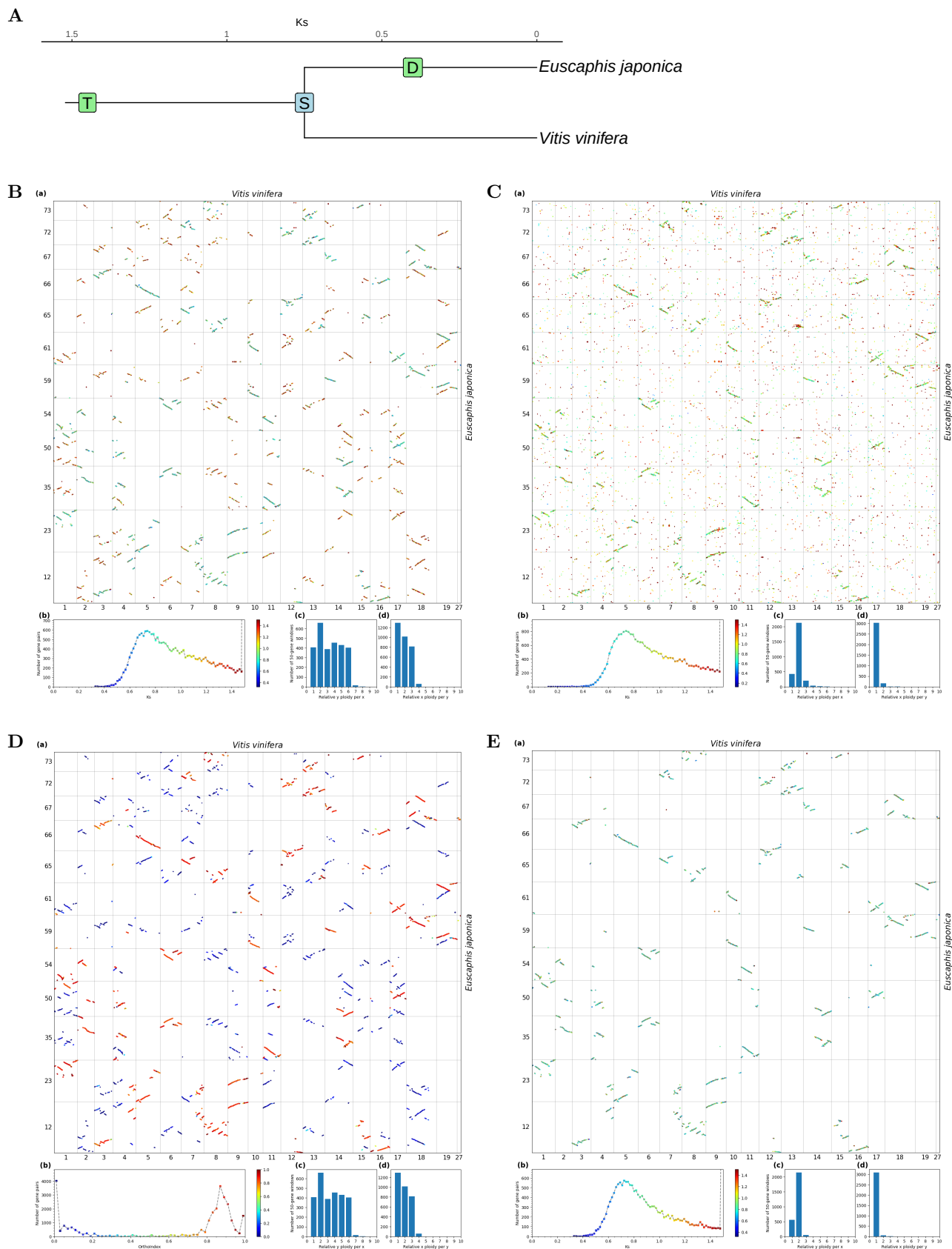


Fig. S 26. Orthology Index in genome evolution of species *Vitis vinifera* and *Euscaphis japonica*. Refer to **Fig.1** for detailed descriptions.

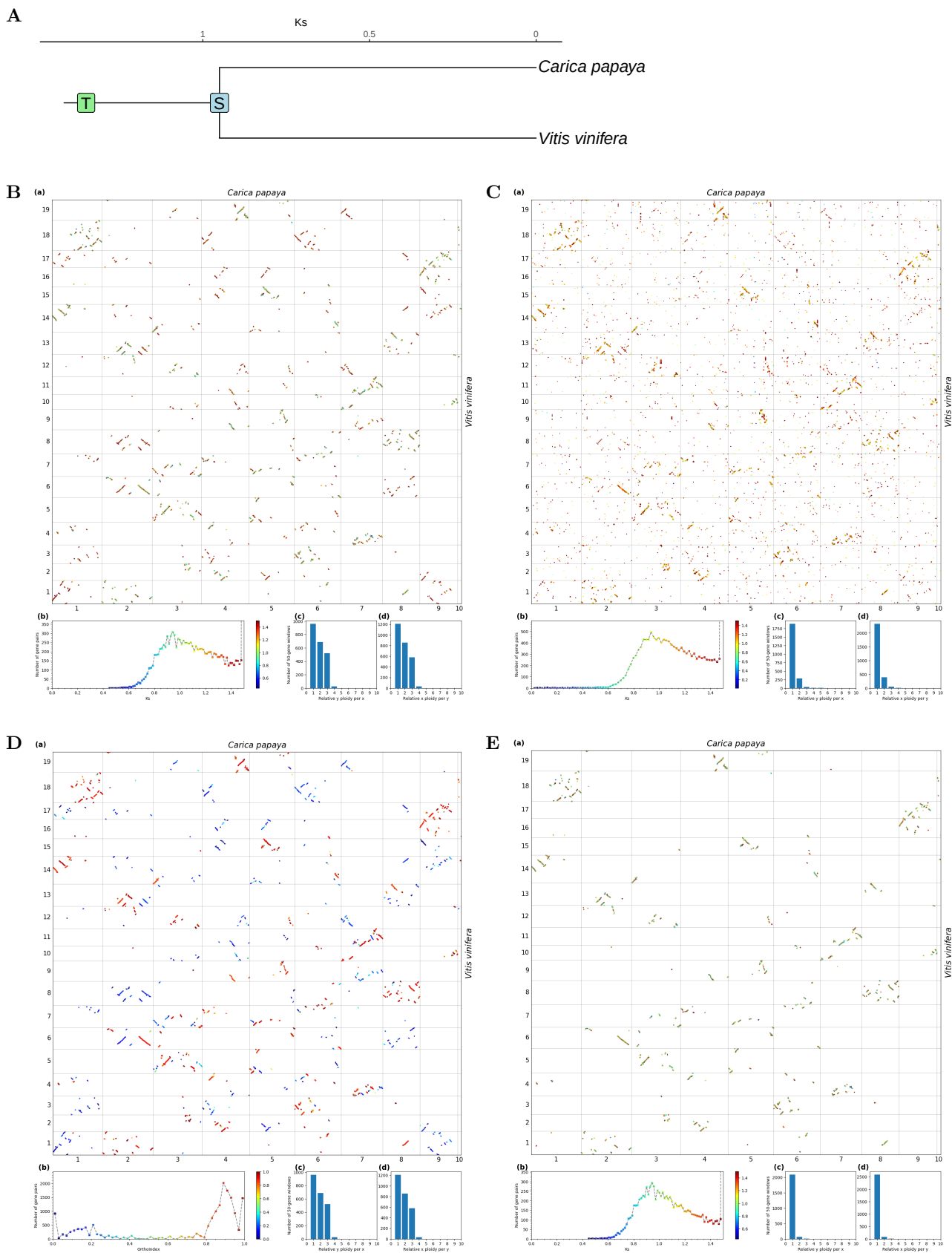


Fig. S 27. Orthology Index in genome evolution of species *Vitis vinifera* and *Carica papaya*. Refer to **Fig.1** for detailed descriptions.

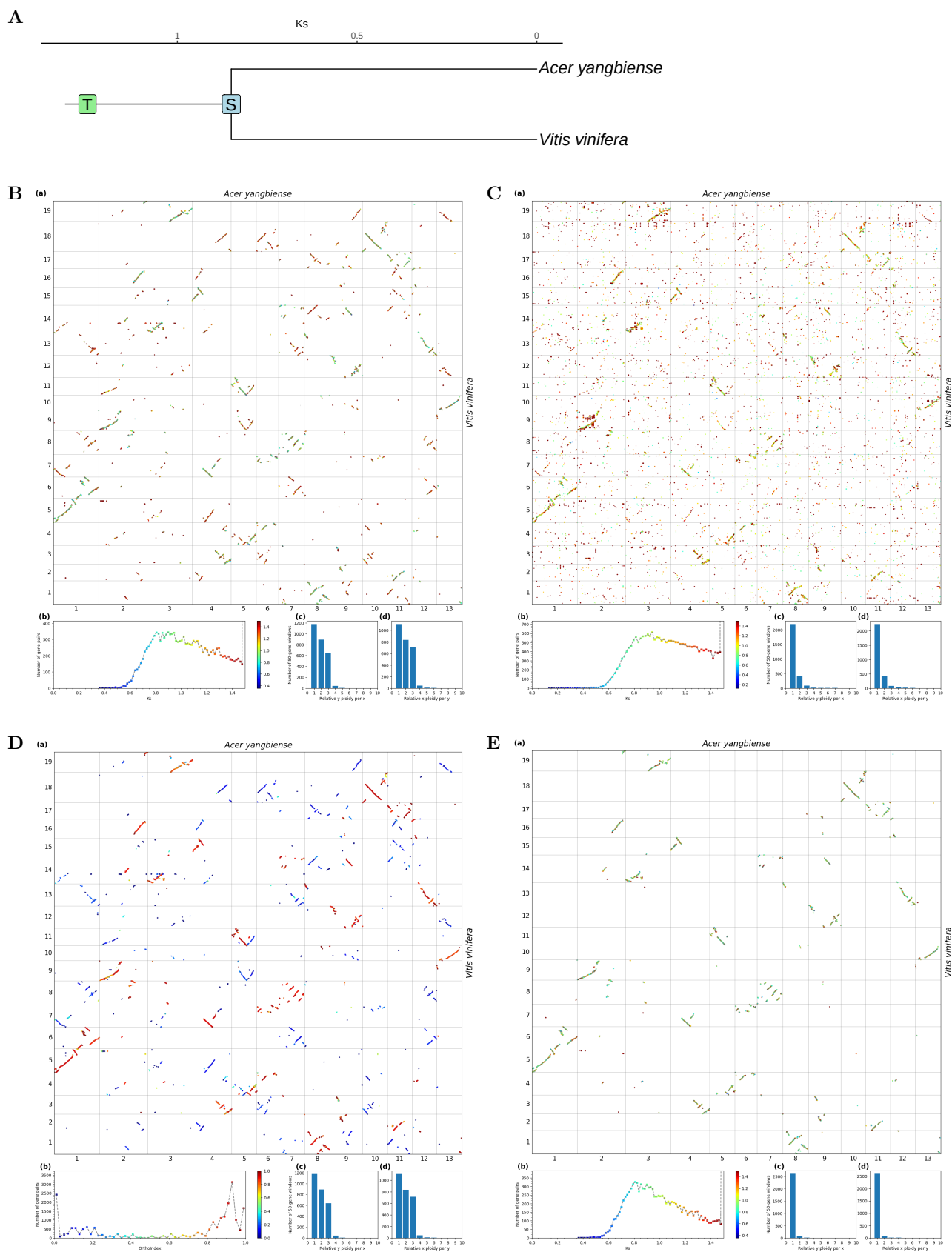


Fig. S 28. Orthology Index in genome evolution of species *Vitis vinifera* and *Acer yangbiense*. Refer to **Fig.1** for detailed descriptions.

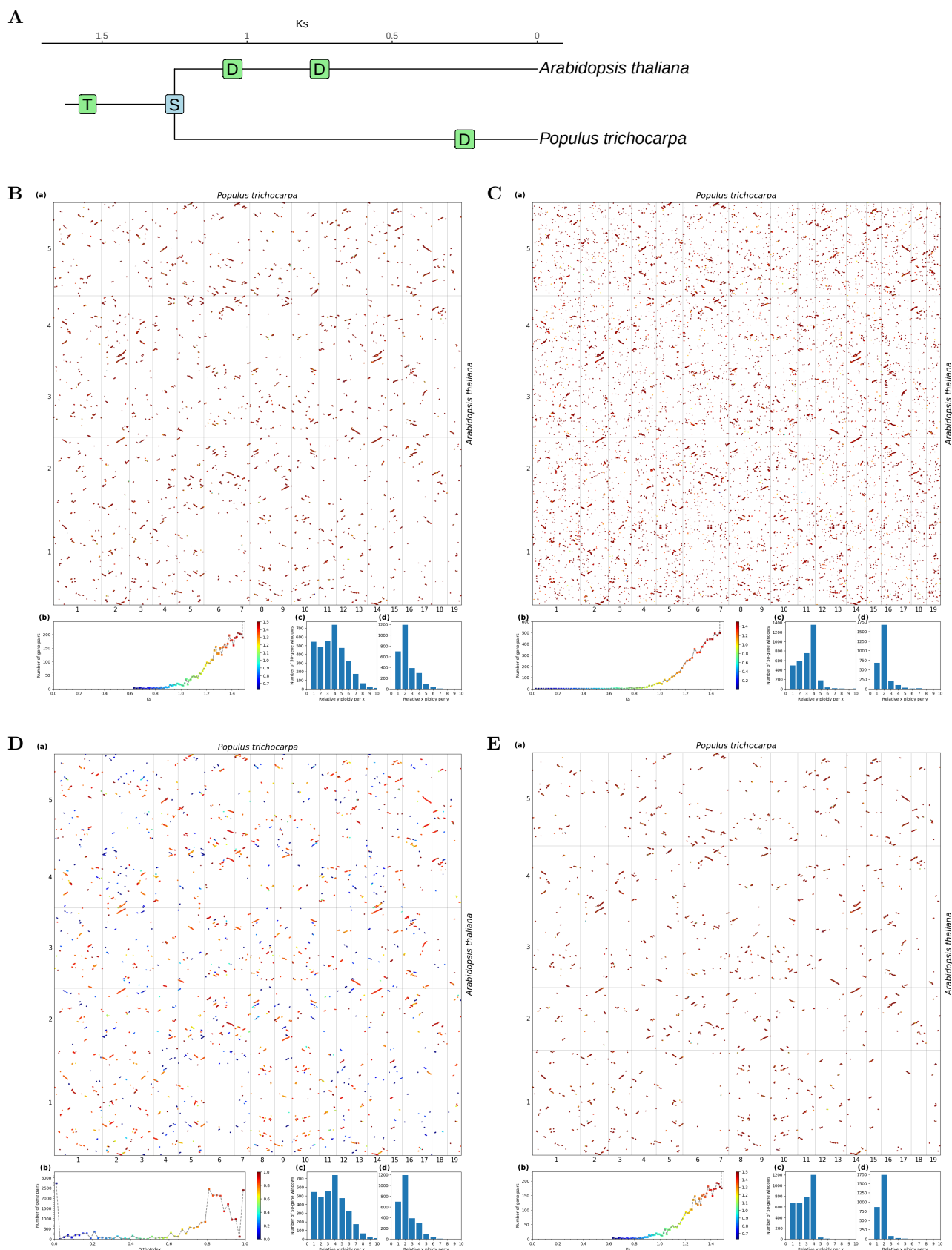


Fig. S 29. Orthology Index in genome evolution of species *Populus trichocarpa* and *Arabidopsis thaliana*. Refer to Fig.1 for detailed descriptions.

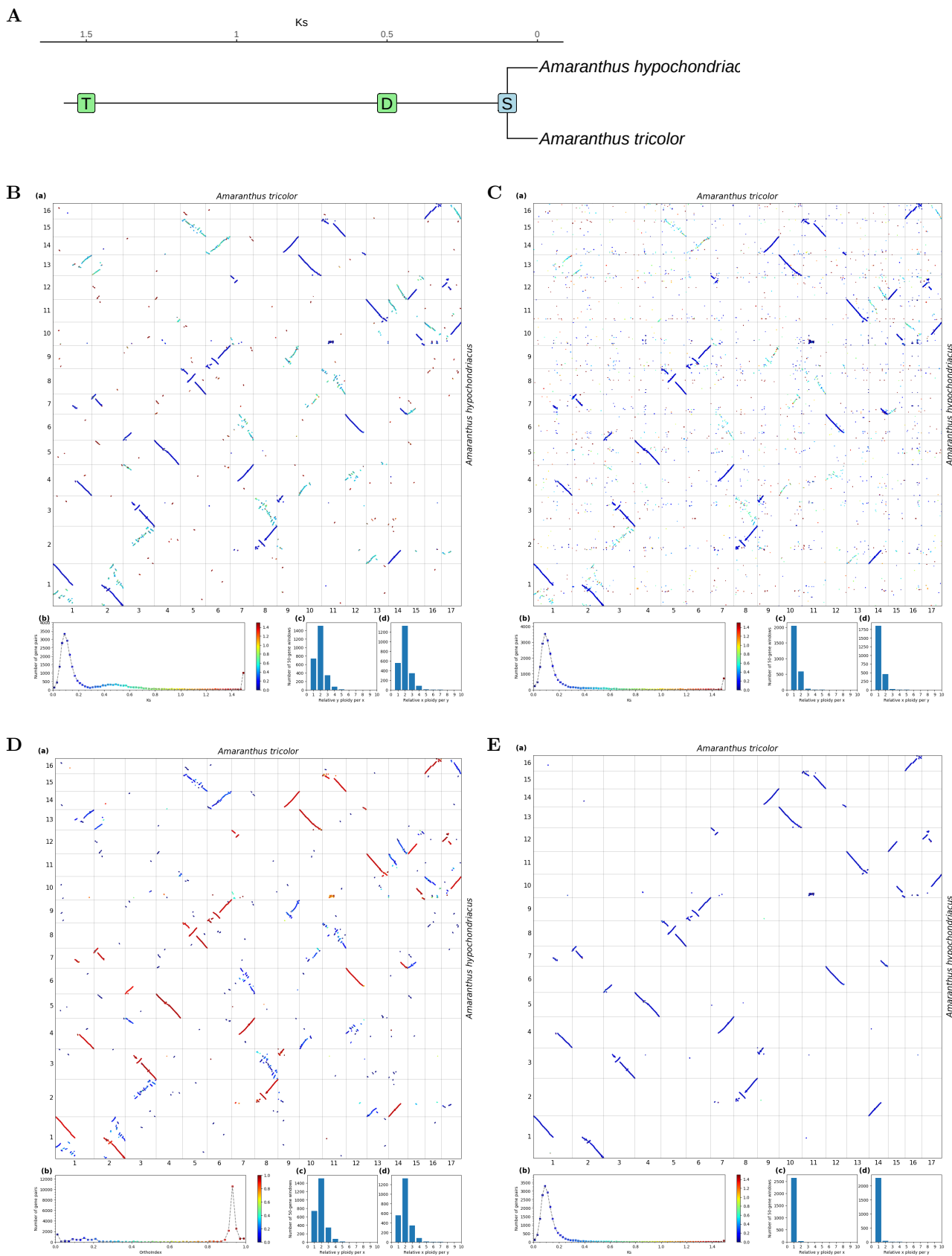


Fig. S 30. Orthology Index in genome evolution of species *Amaranthus tricolor* and *Amaranthus hypochondriacus*. Refer to Fig.1 for detailed descriptions.

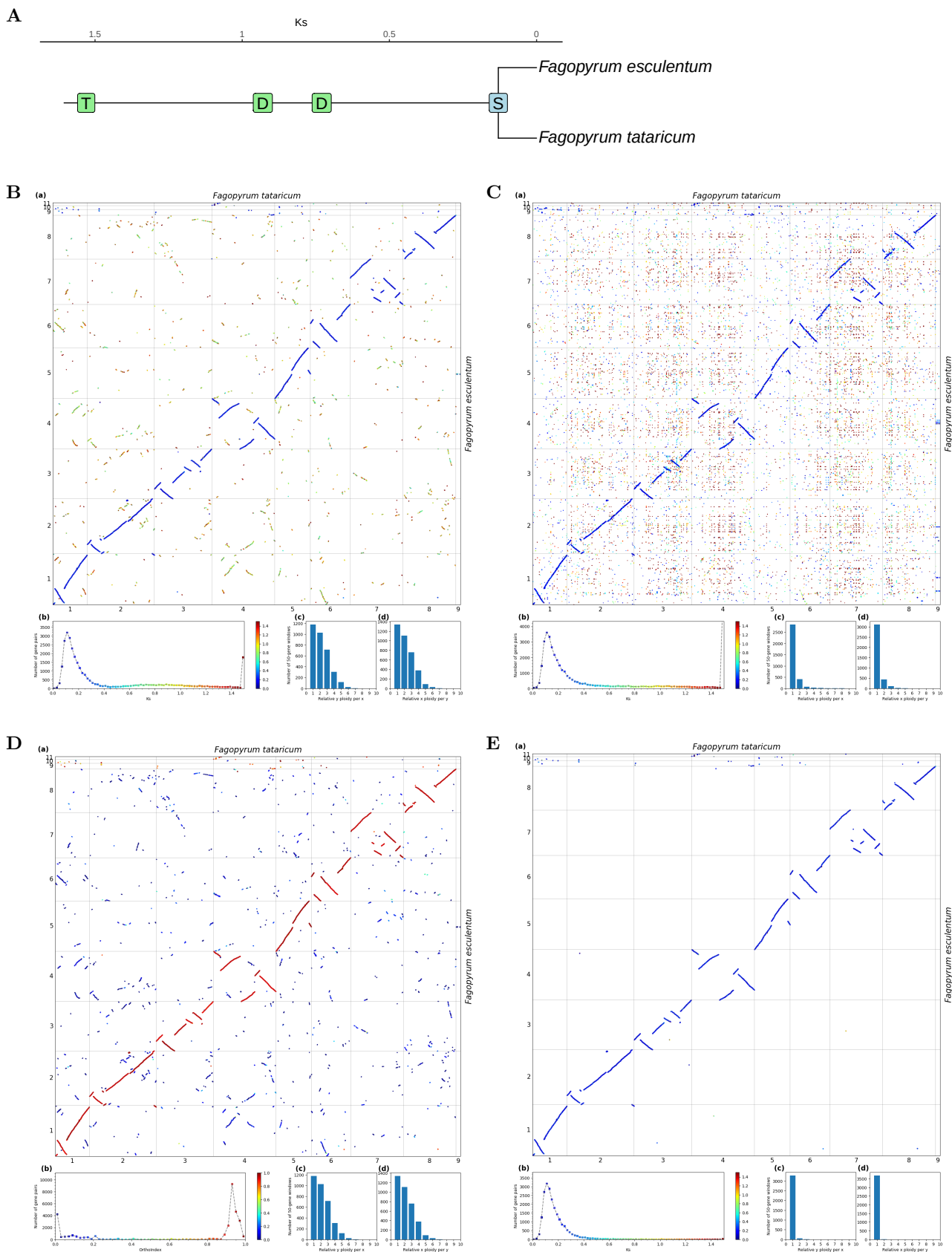


Fig. S 31. Orthology Index in genome evolution of species *Fagopyrum tataricum* and *Fagopyrum esculentum*. Refer to Fig.1 for detailed descriptions.

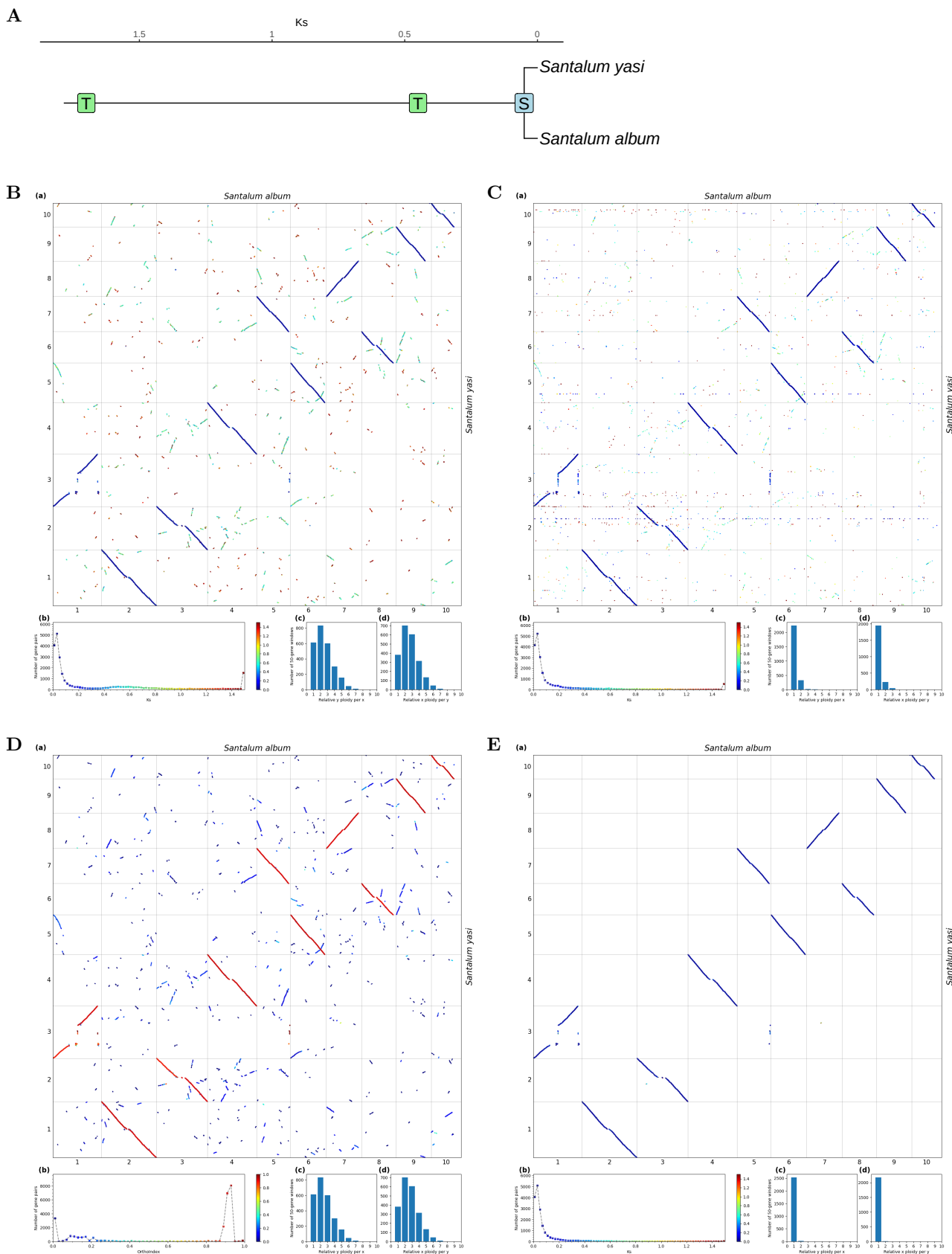


Fig. S 32. Orthology Index in genome evolution of species *Santalum album* and *Santalum yasi*. Refer to **Fig.1** for detailed descriptions.

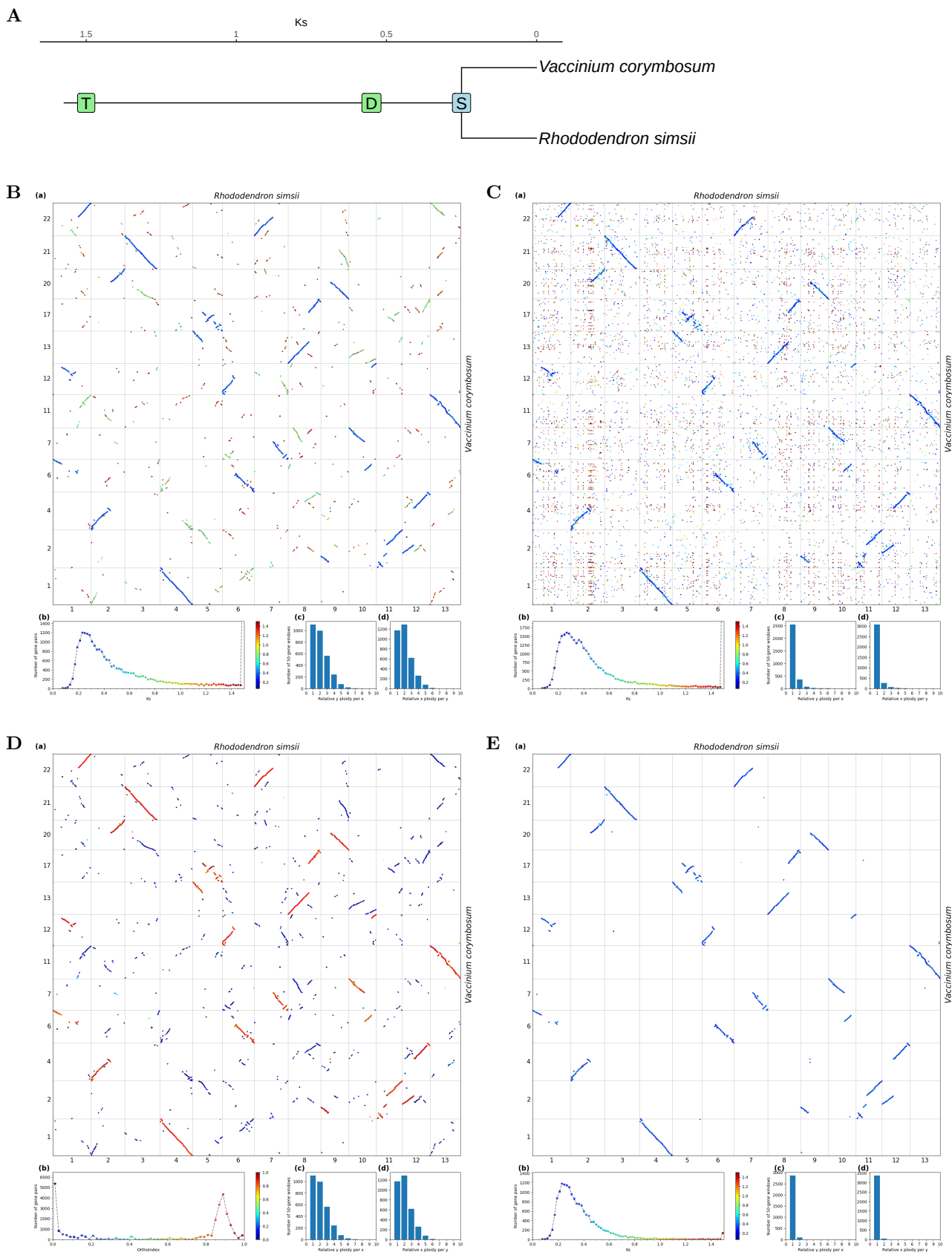


Fig. S 33. Orthology Index in genome evolution of species *Rhododendron simsii* and *Vaccinium corymbosum*. Refer to **Fig.1** for detailed descriptions.

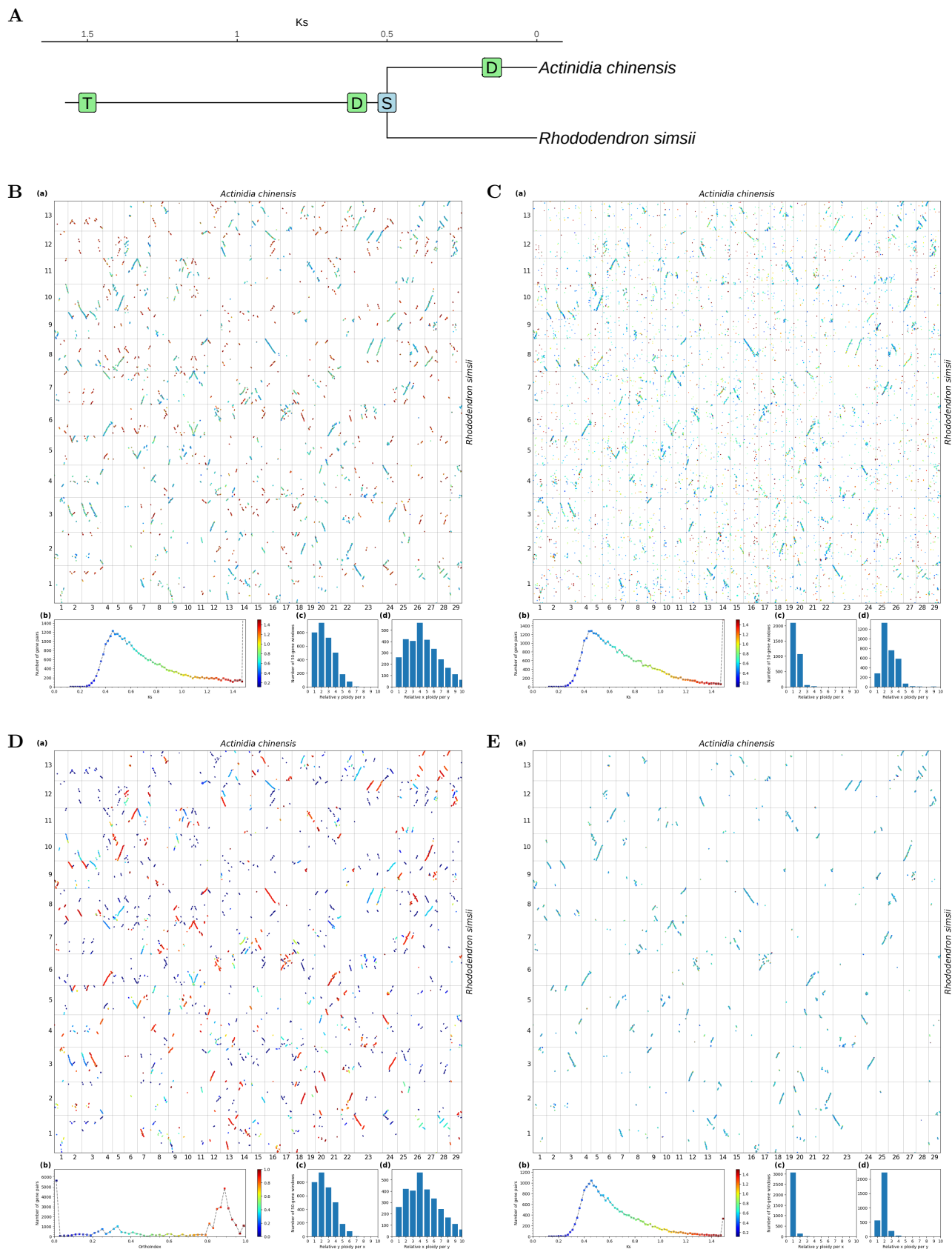


Fig. S 34. Orthology Index in genome evolution of species *Rhododendron simsii* and *Actinidia chinensis*. Refer to **Fig.1** for detailed descriptions.

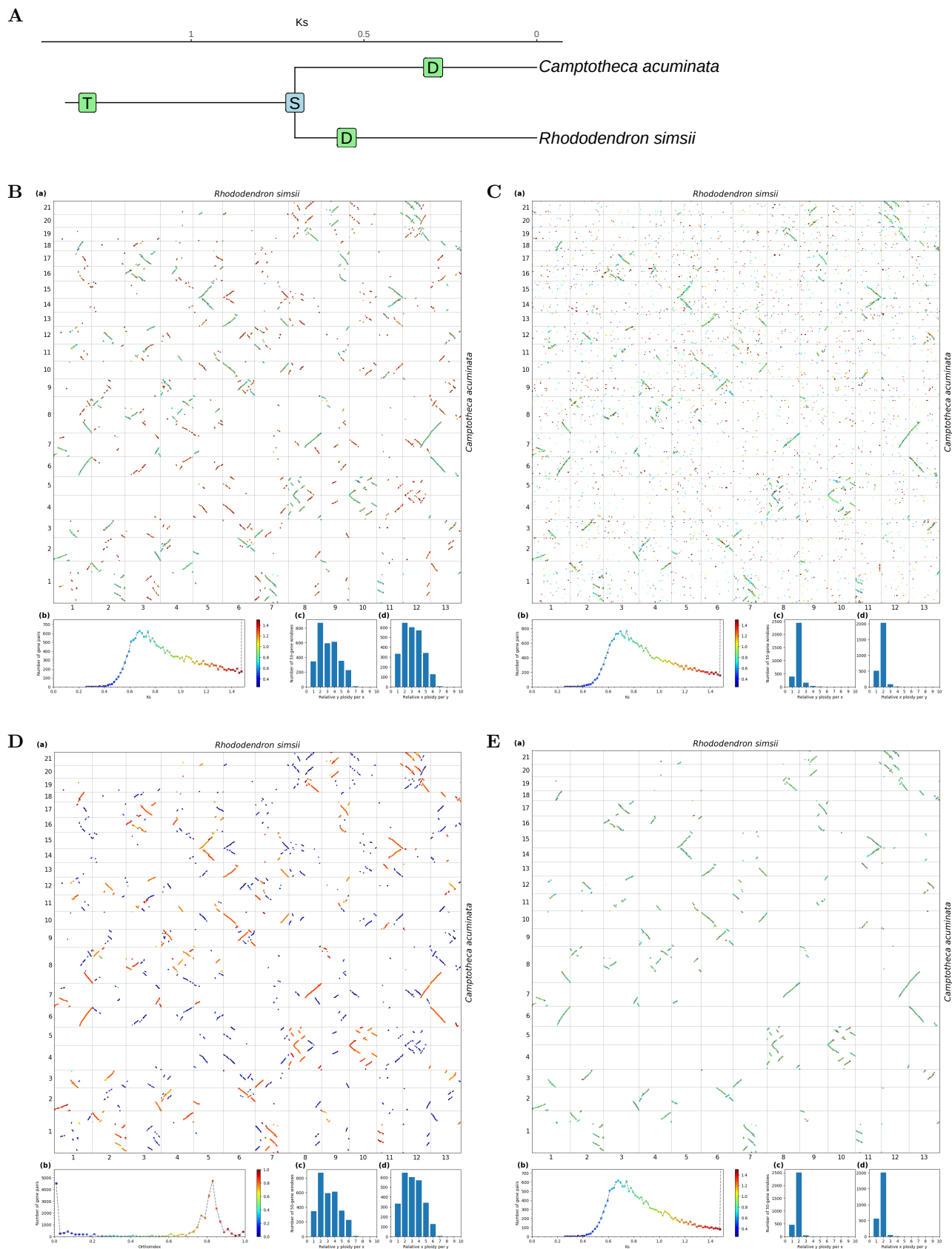


Fig. S 35. Orthology Index in genome evolution of species *Rhododendron simsii* and *Camptotheca acuminata*. Refer to Fig.1 for detailed descriptions.

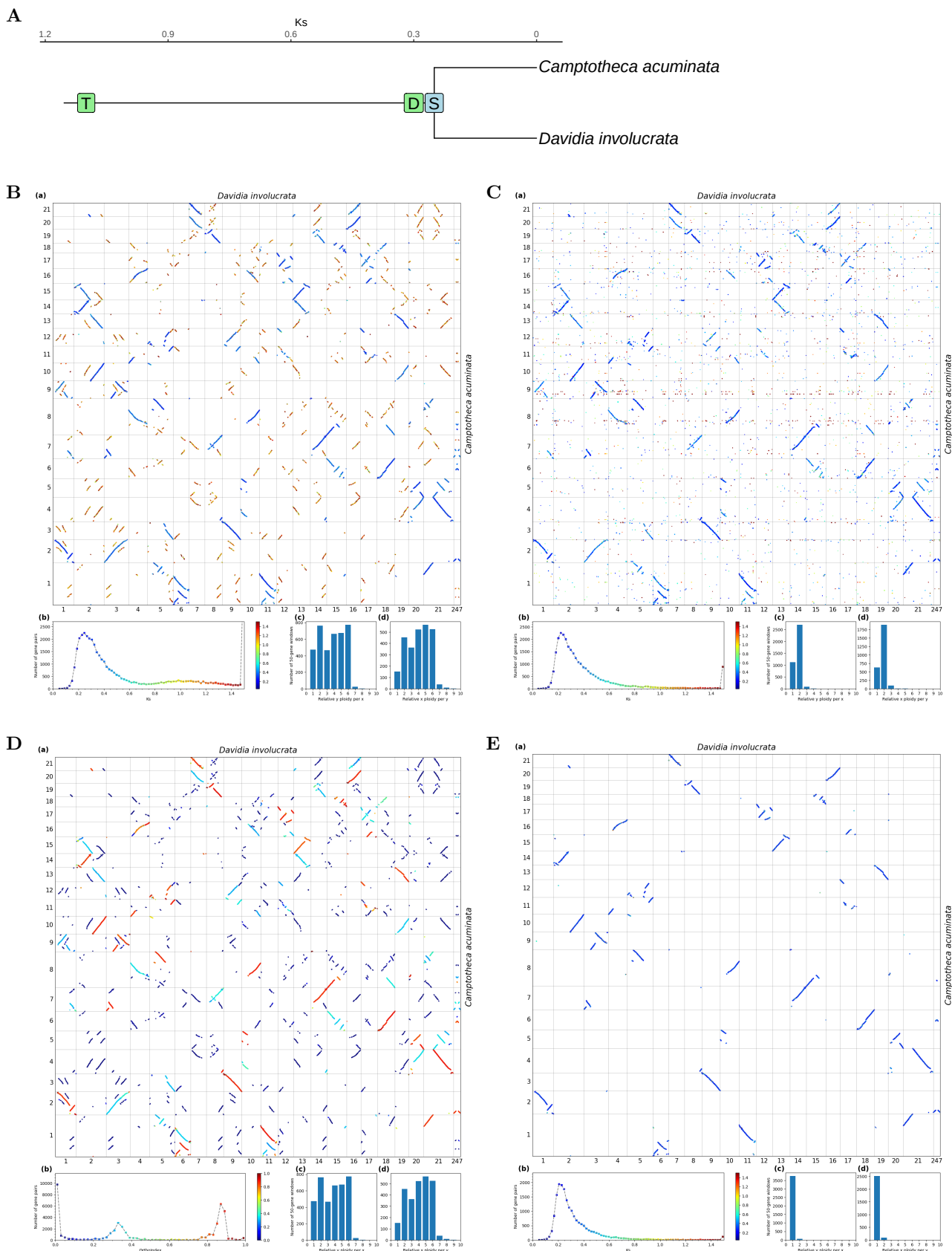


Fig. S 36. Orthology Index in genome evolution of species *Davidia involucrata* and *Camptotheca acuminata*. Refer to Fig.1 for detailed descriptions.

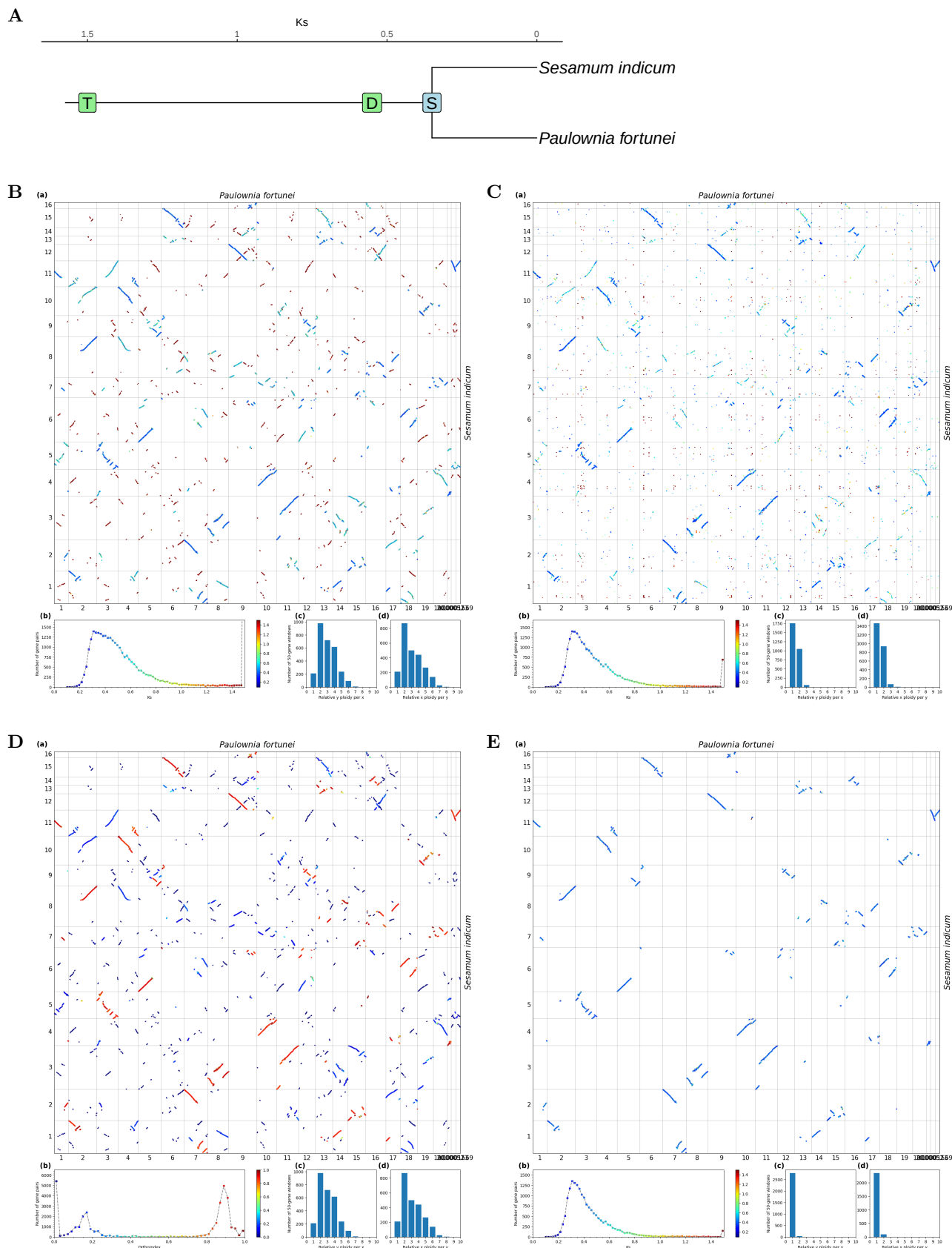


Fig. S 37. Orthology Index in genome evolution of species *Paulownia fortunei* and *Sesamum indicum*. Refer to **Fig.1** for detailed descriptions.

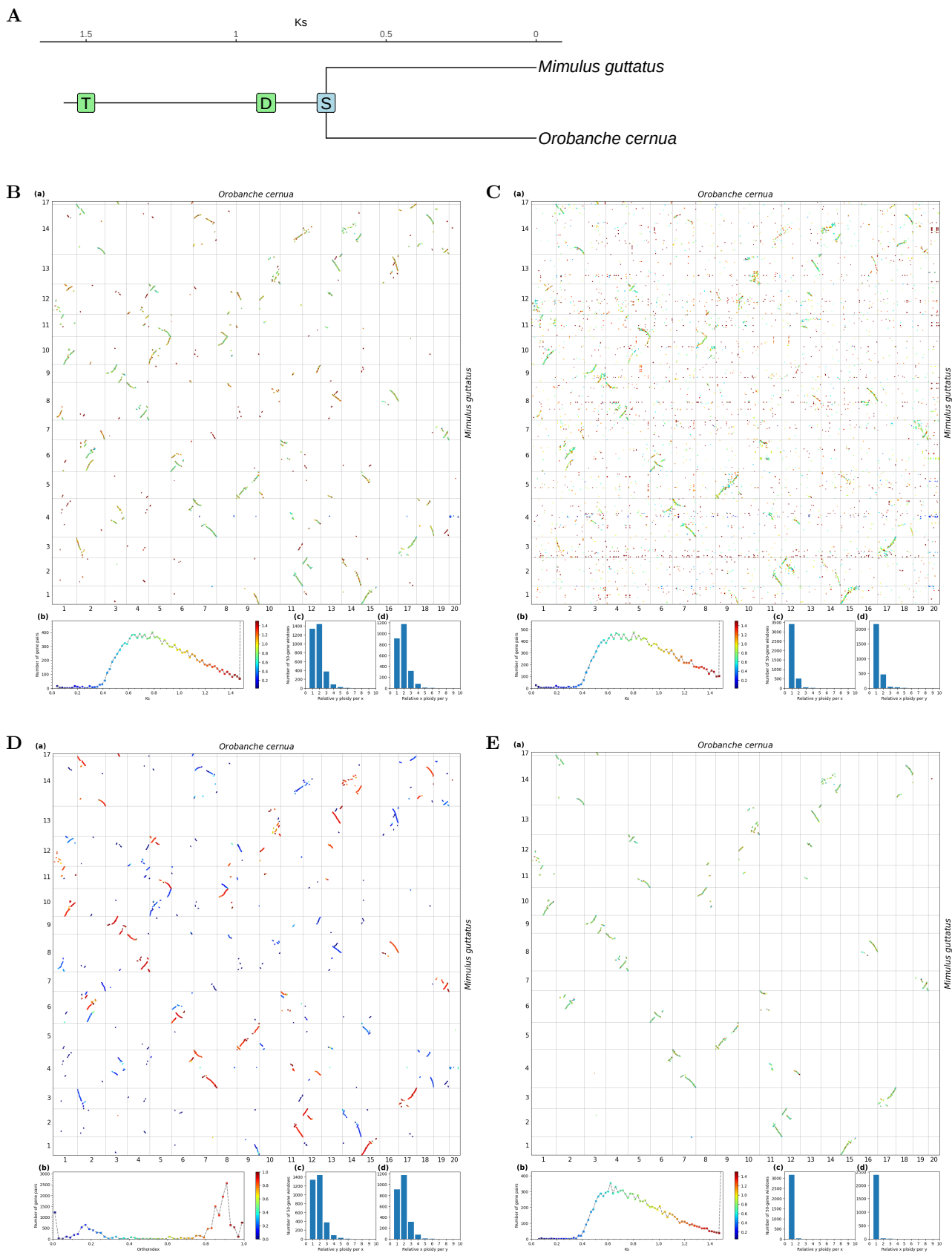


Fig. S 38. Orthology Index in genome evolution of species *Orobanche cernua* and *Mimulus guttatus*. Refer to **Fig.1** for detailed descriptions.

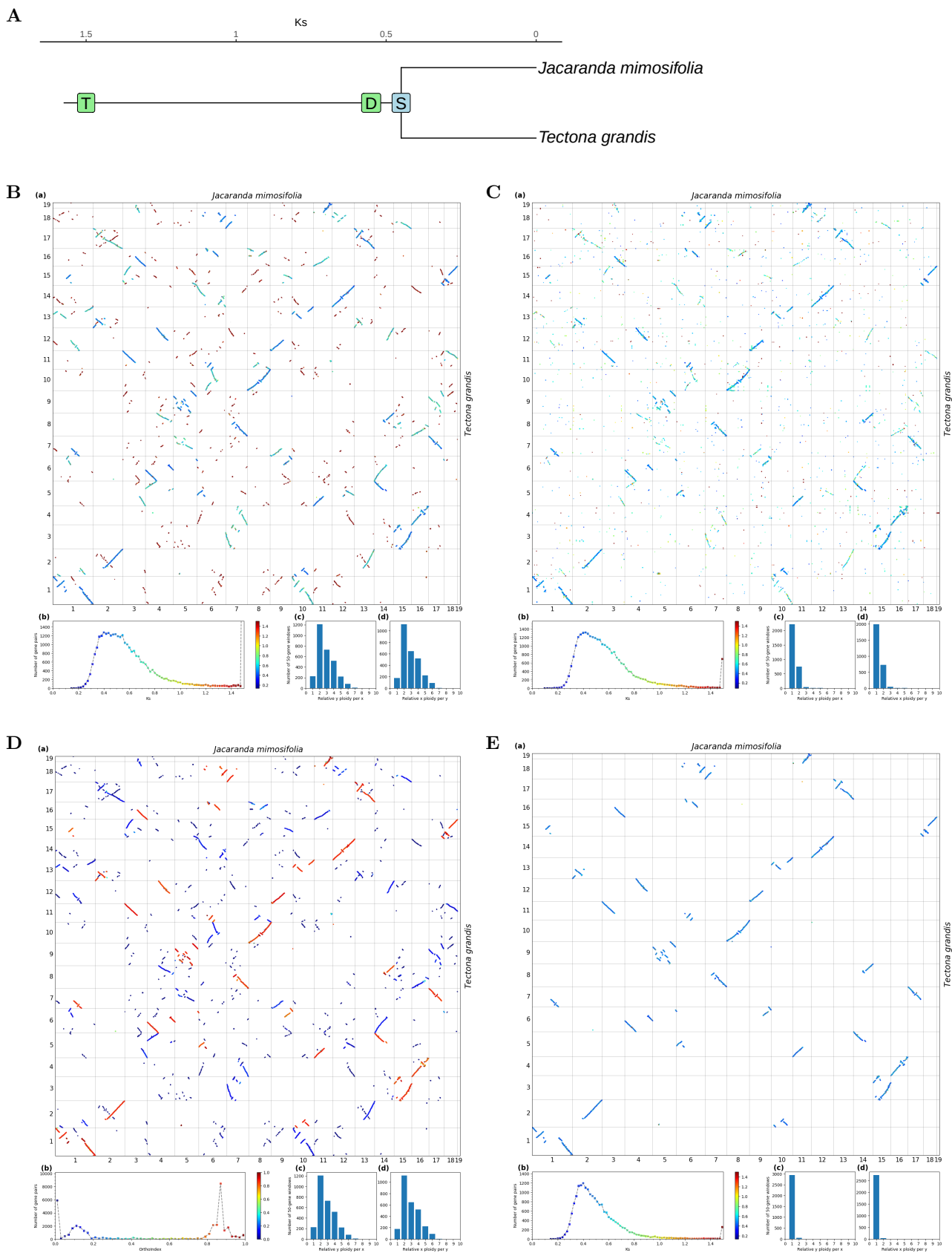


Fig. S 39. Orthology Index in genome evolution of species *Tectona grandis* and *Jacaranda mimosifolia*. Refer to **Fig.1** for detailed descriptions.

A

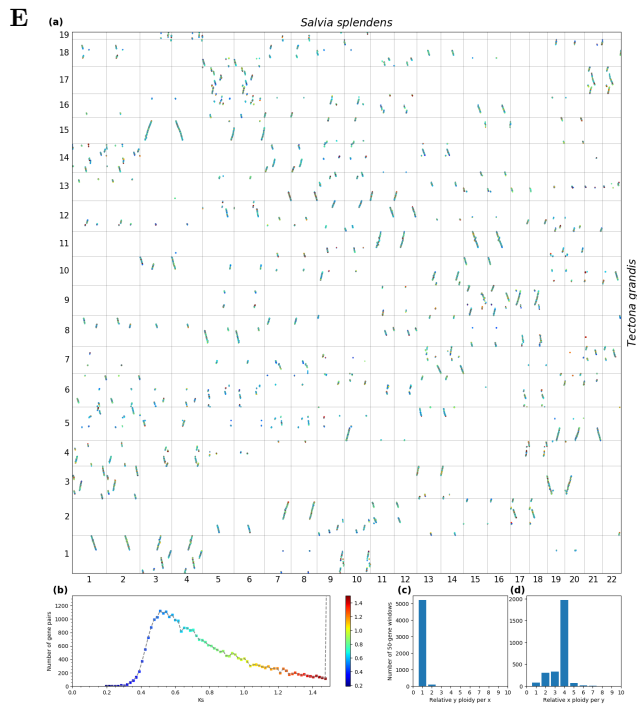
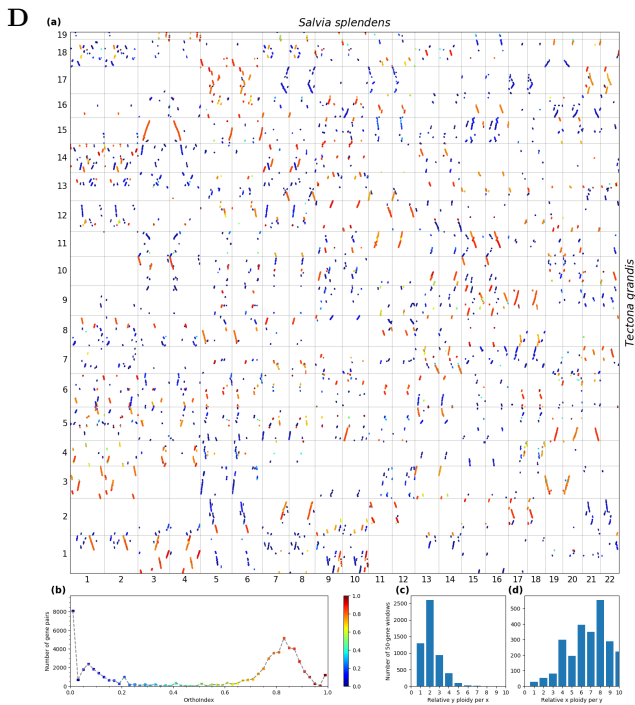
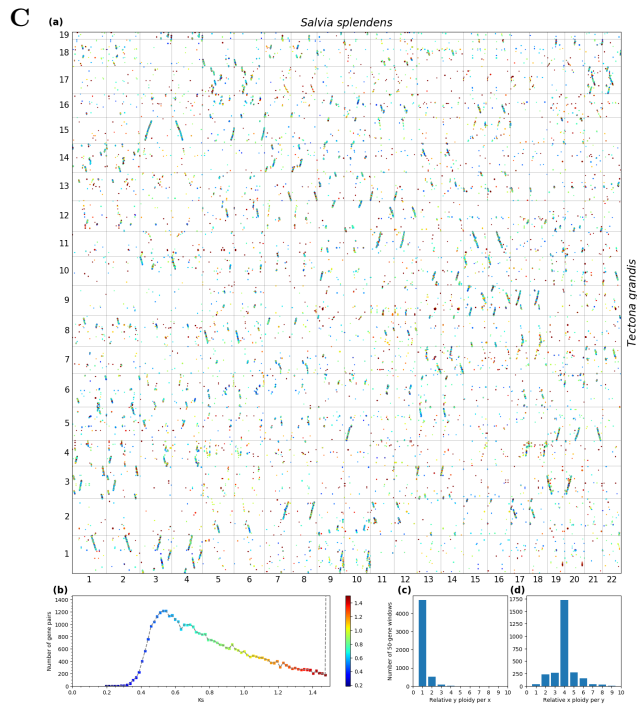
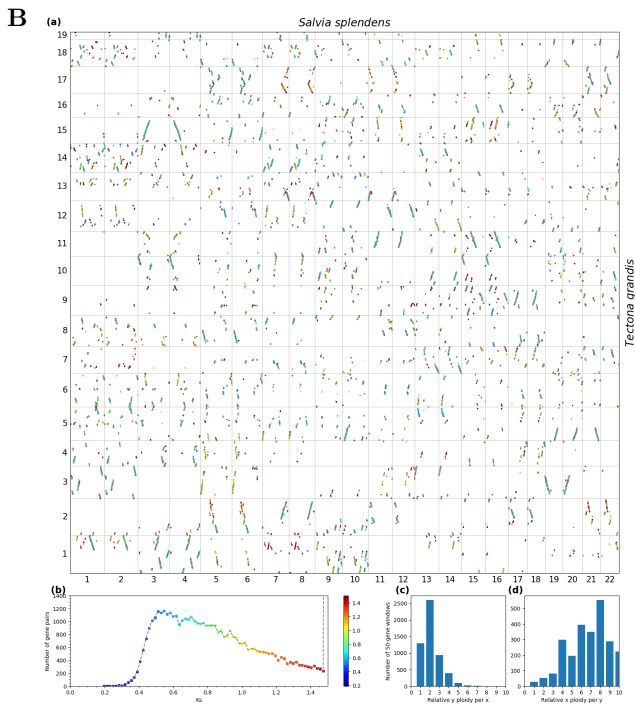
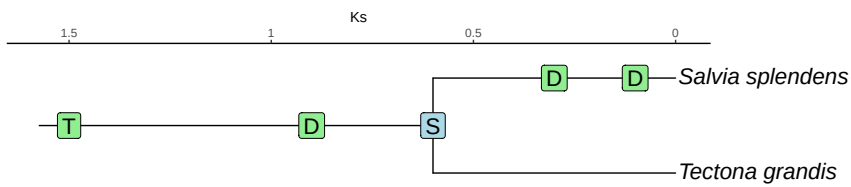


Fig. S 40. Orthology Index in genome evolution of species *Tectona grandis* and *Salvia splendens*. Refer to **Fig.1** for detailed descriptions.

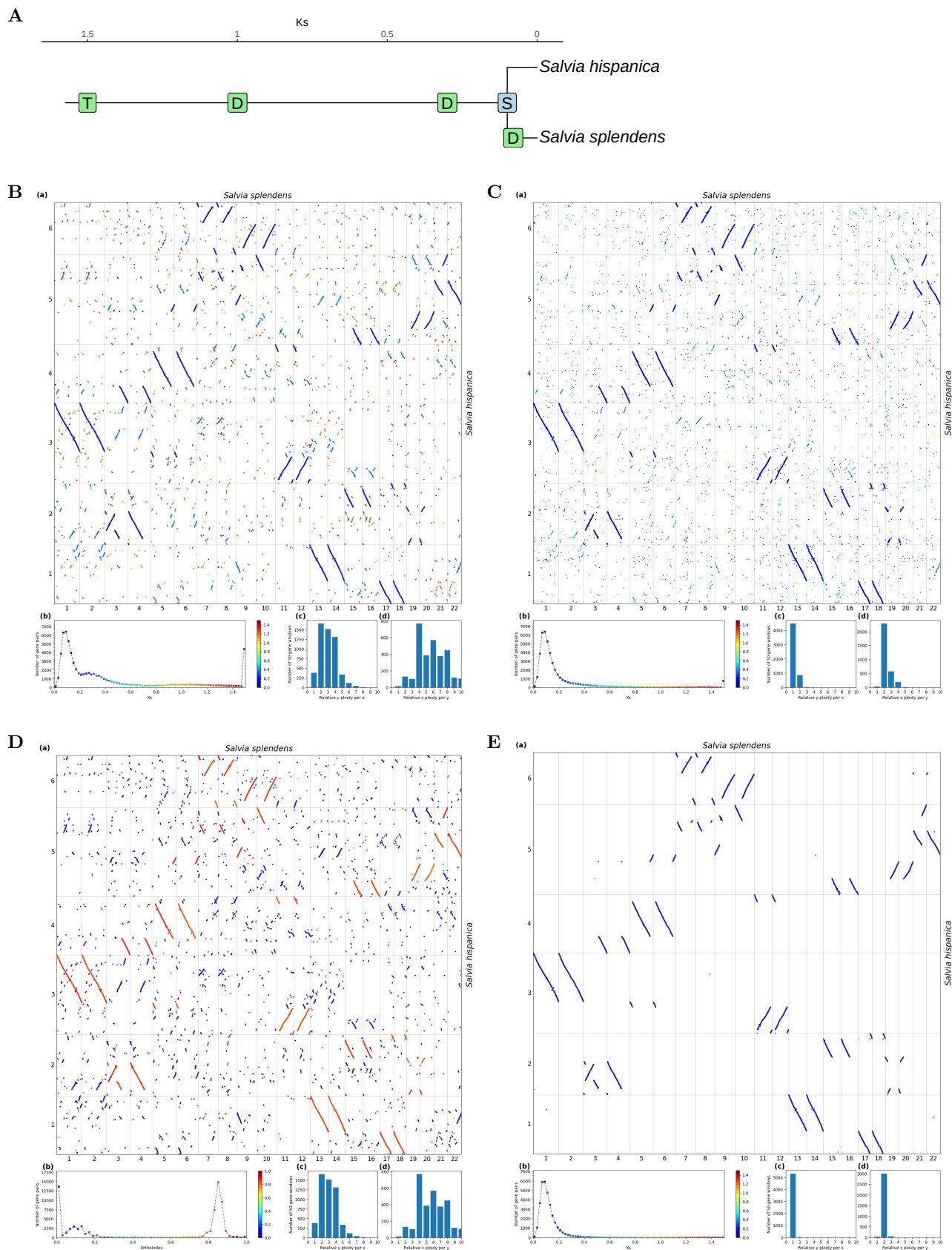


Fig. S 41. Orthology Index in genome evolution of species *Salvia splendens* and *Salvia hispanica*. Refer to Fig.1 for detailed descriptions.

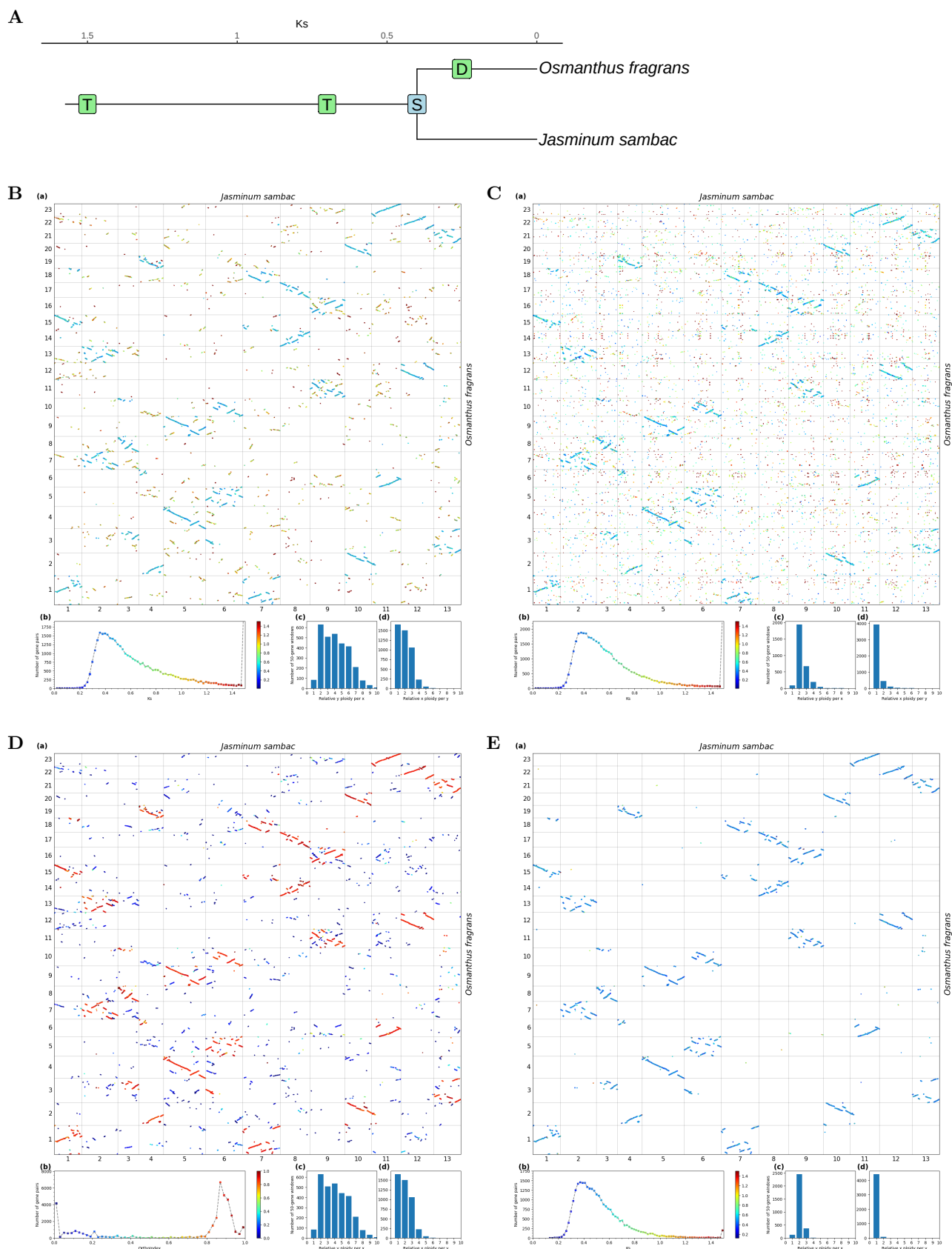


Fig. S 42. Orthology Index in genome evolution of species *Jasminum sambac* and *Osmanthus fragrans*. Refer to **Fig.1** for detailed descriptions.

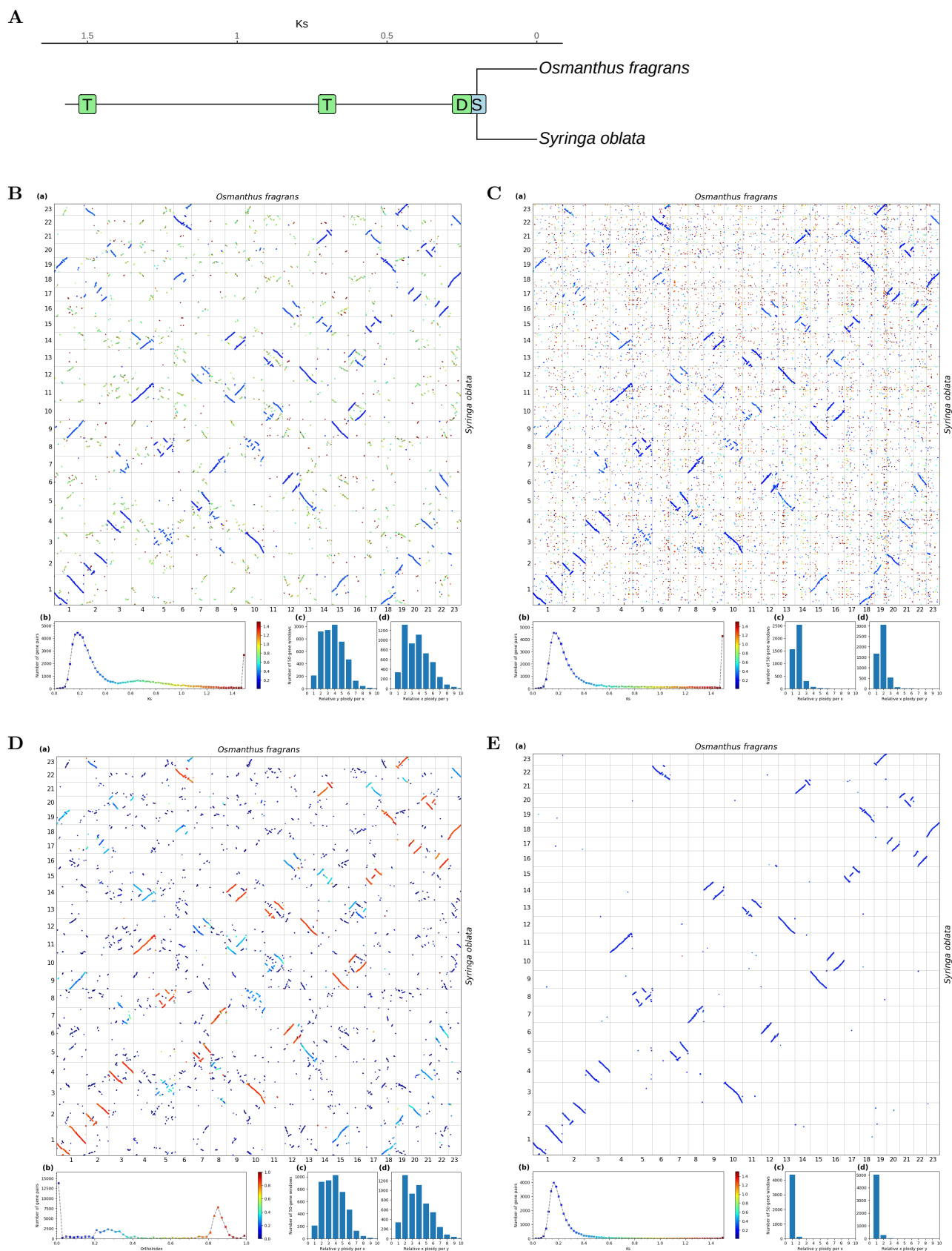


Fig. S 43. Orthology Index in genome evolution of species *Syringa oblata* and *Osmanthus fragrans*. Refer to **Fig.1** for detailed descriptions.

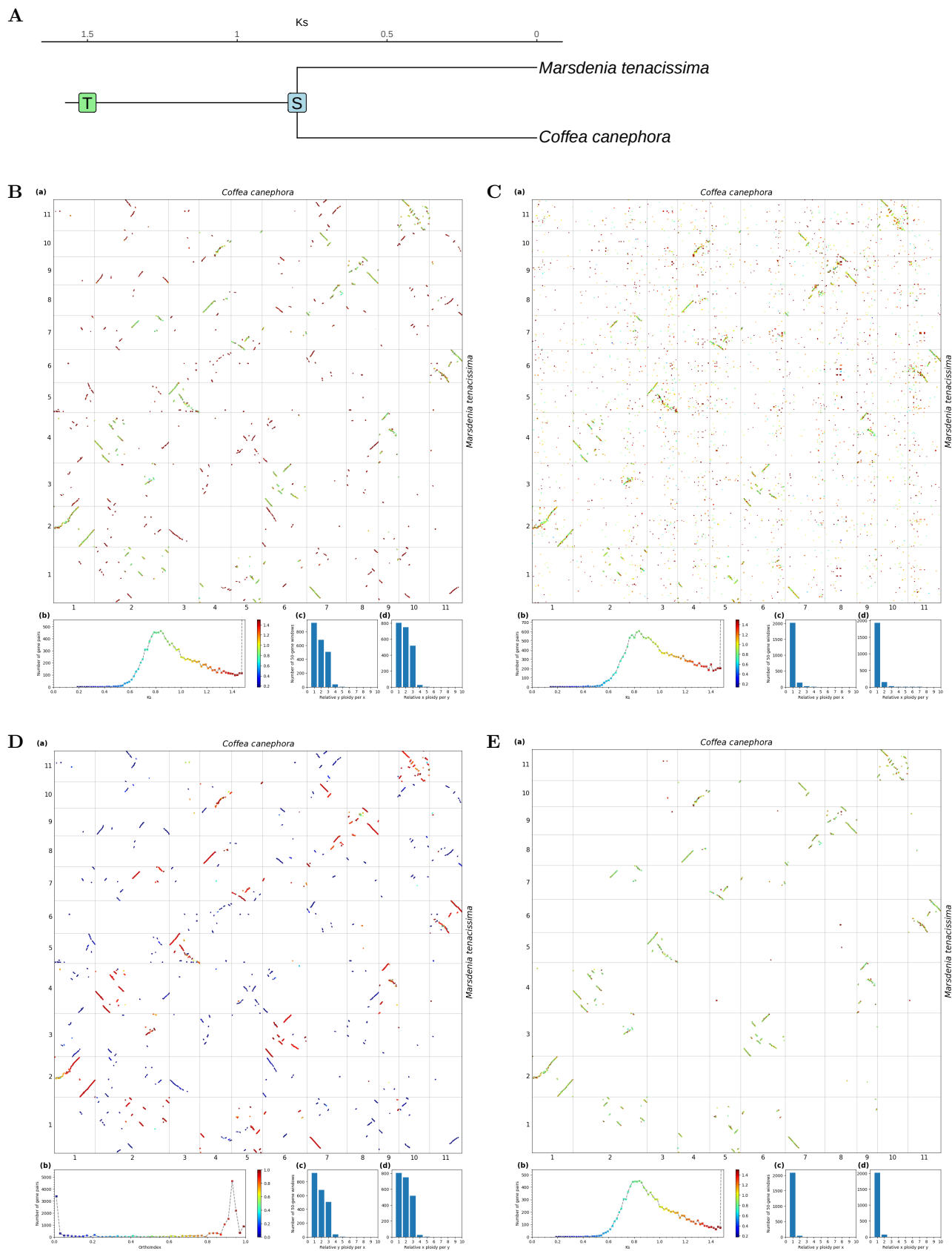


Fig. S 44. Orthology Index in genome evolution of species *Coffea canephora* and *Marsdenia tenacissima*. Refer to **Fig.1** for detailed descriptions.

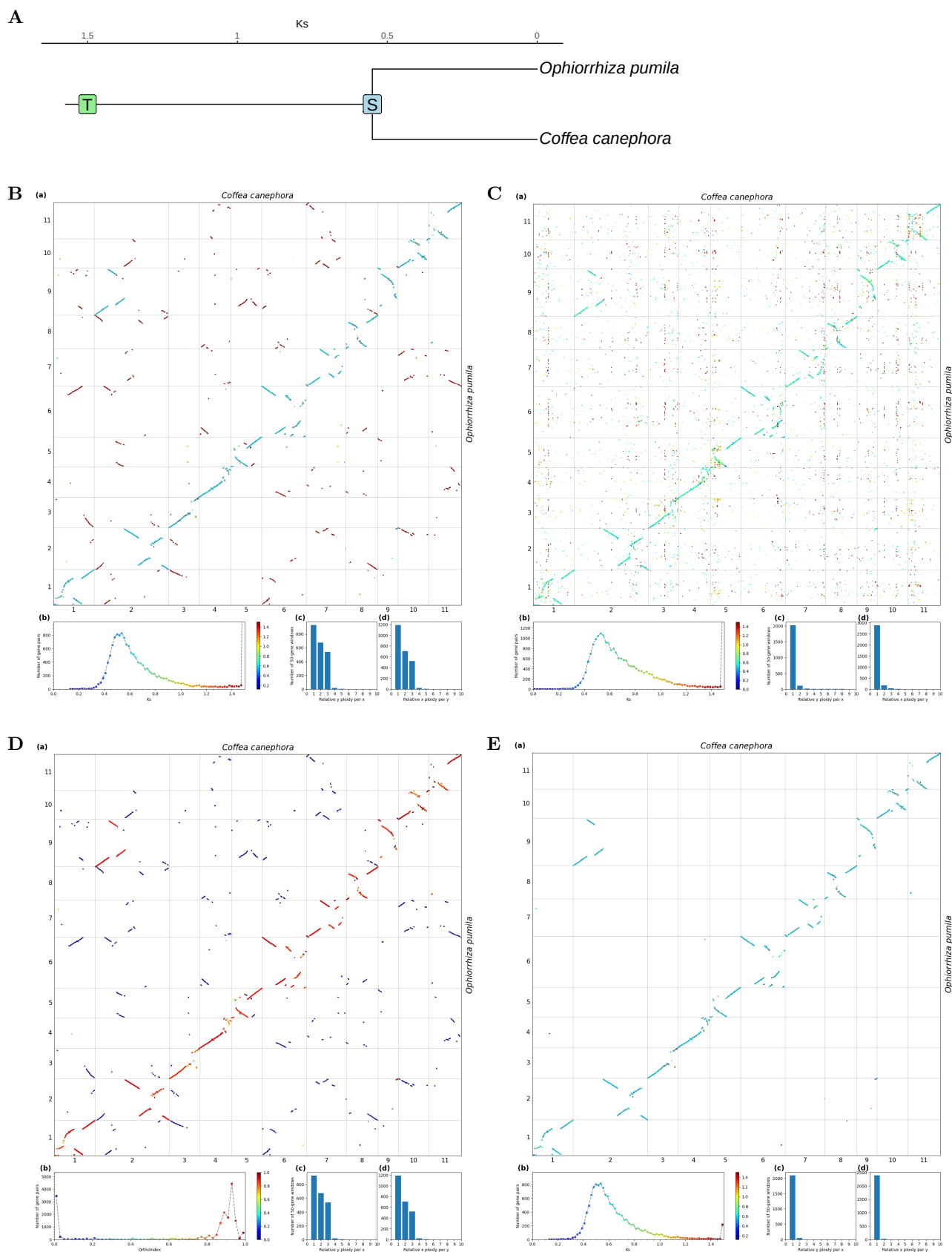


Fig. S 45. Orthology Index in genome evolution of species *Coffea canephora* and *Ophiorrhiza pumila*. Refer to **Fig.1** for detailed descriptions.

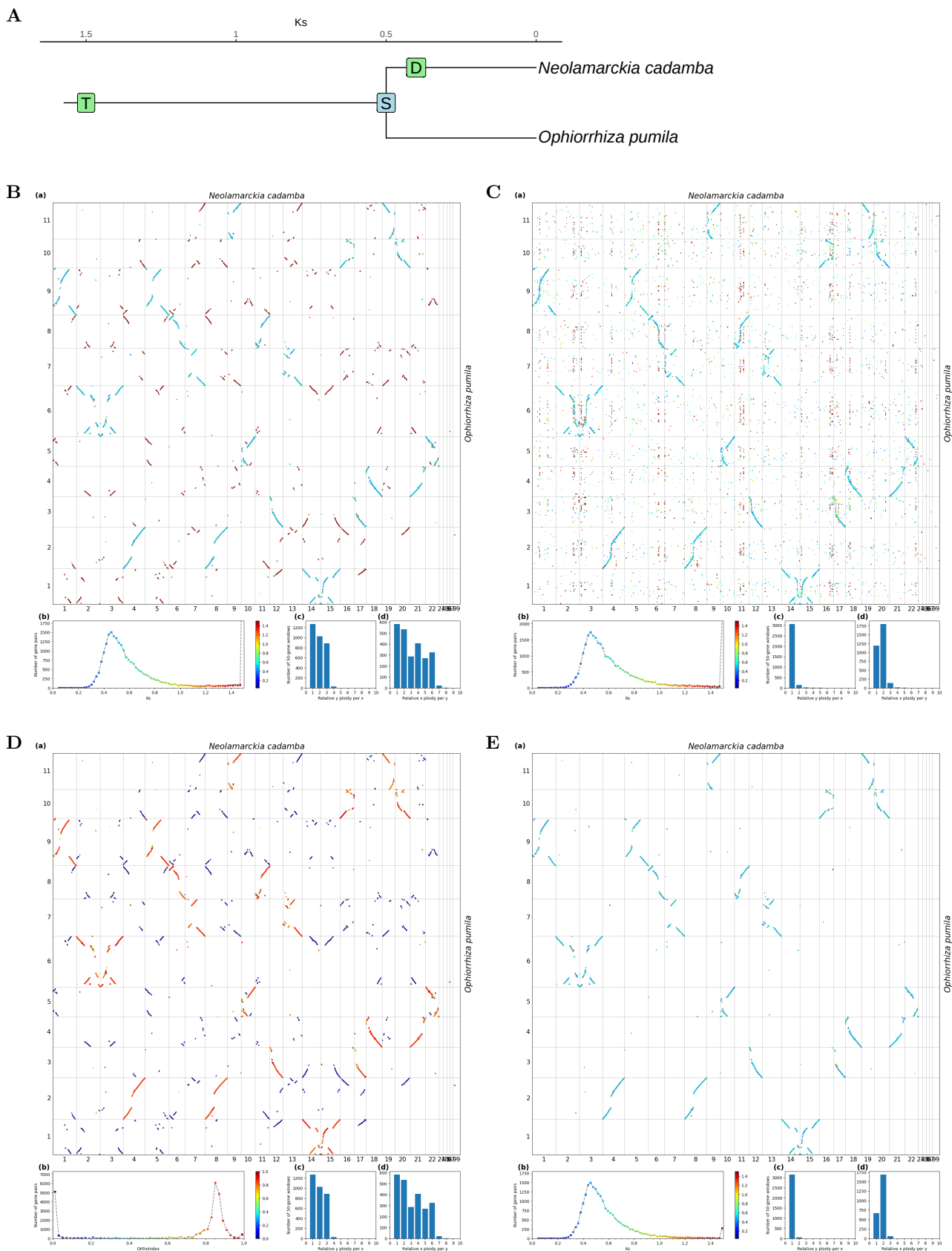


Fig. S 46. Orthology Index in genome evolution of species *Ophiorrhiza pumila* and *Neolamarckia cadamba*. Refer to **Fig.1** for detailed descriptions.

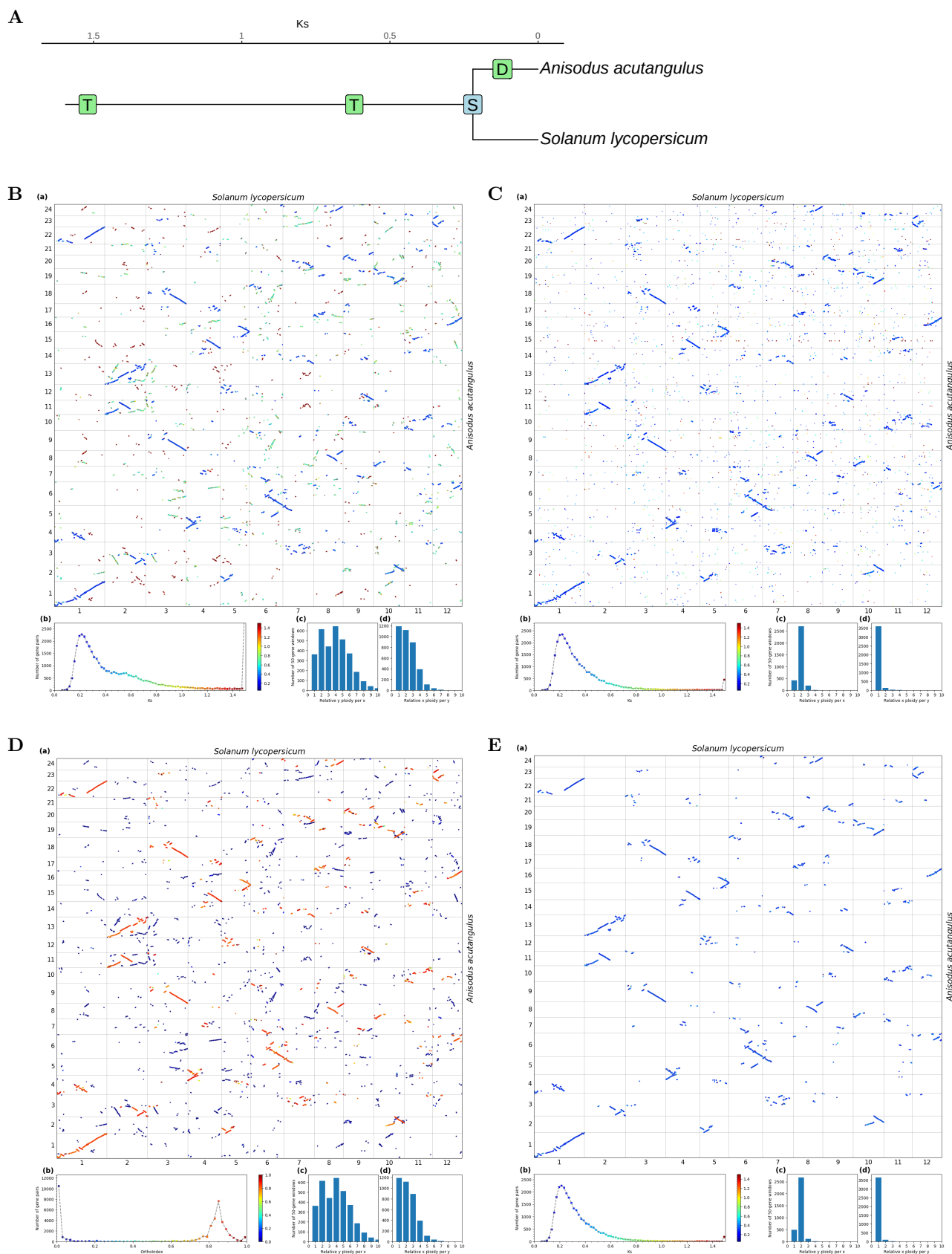


Fig. S 47. Orthology Index in genome evolution of species *Solanum lycopersicum* and *Anisodus acutangulus*. Refer to Fig.1 for detailed descriptions.

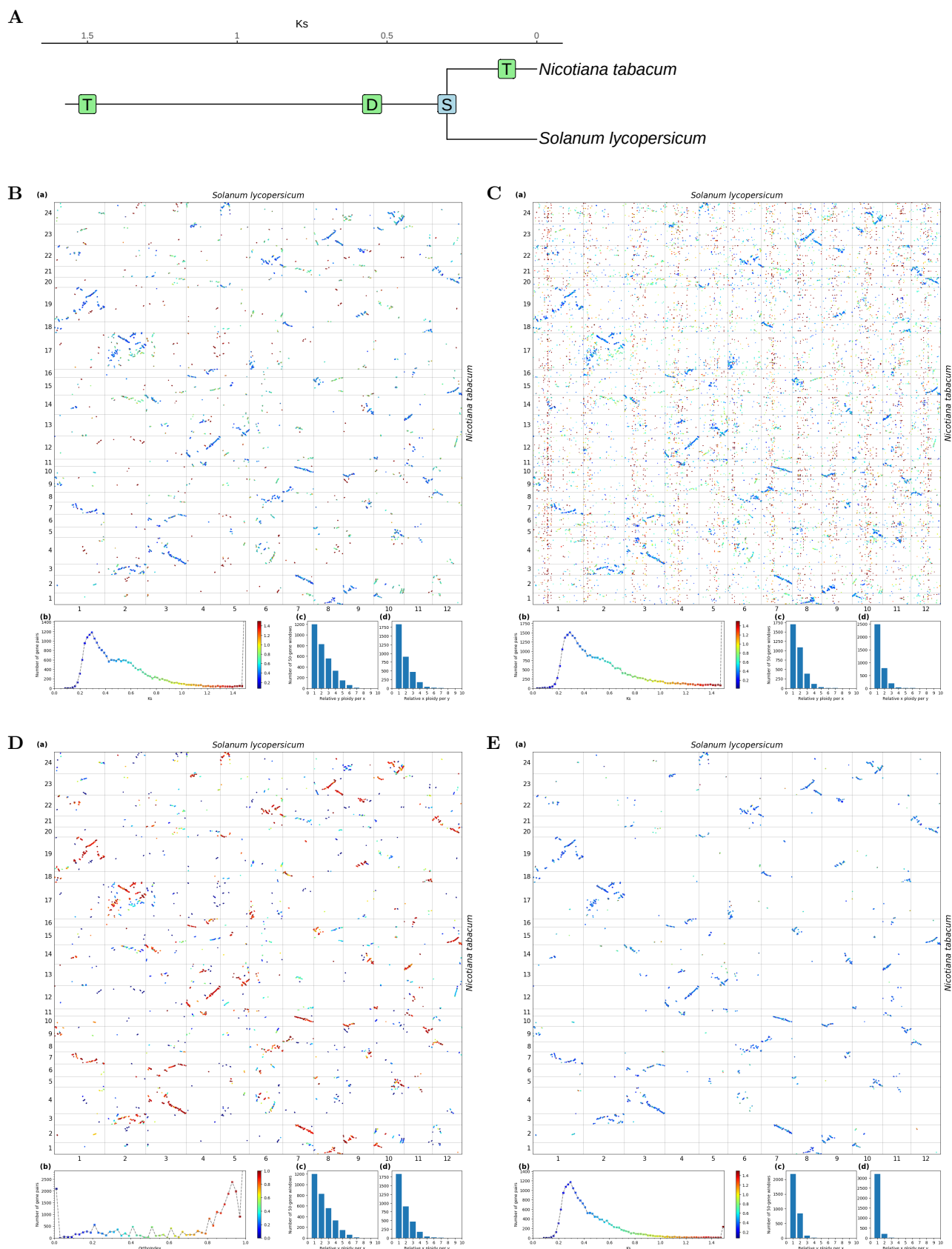


Fig. S 48. Orthology Index in genome evolution of species *Solanum lycopersicum* and *Nicotiana tabacum*. Refer to **Fig.1** for detailed descriptions.

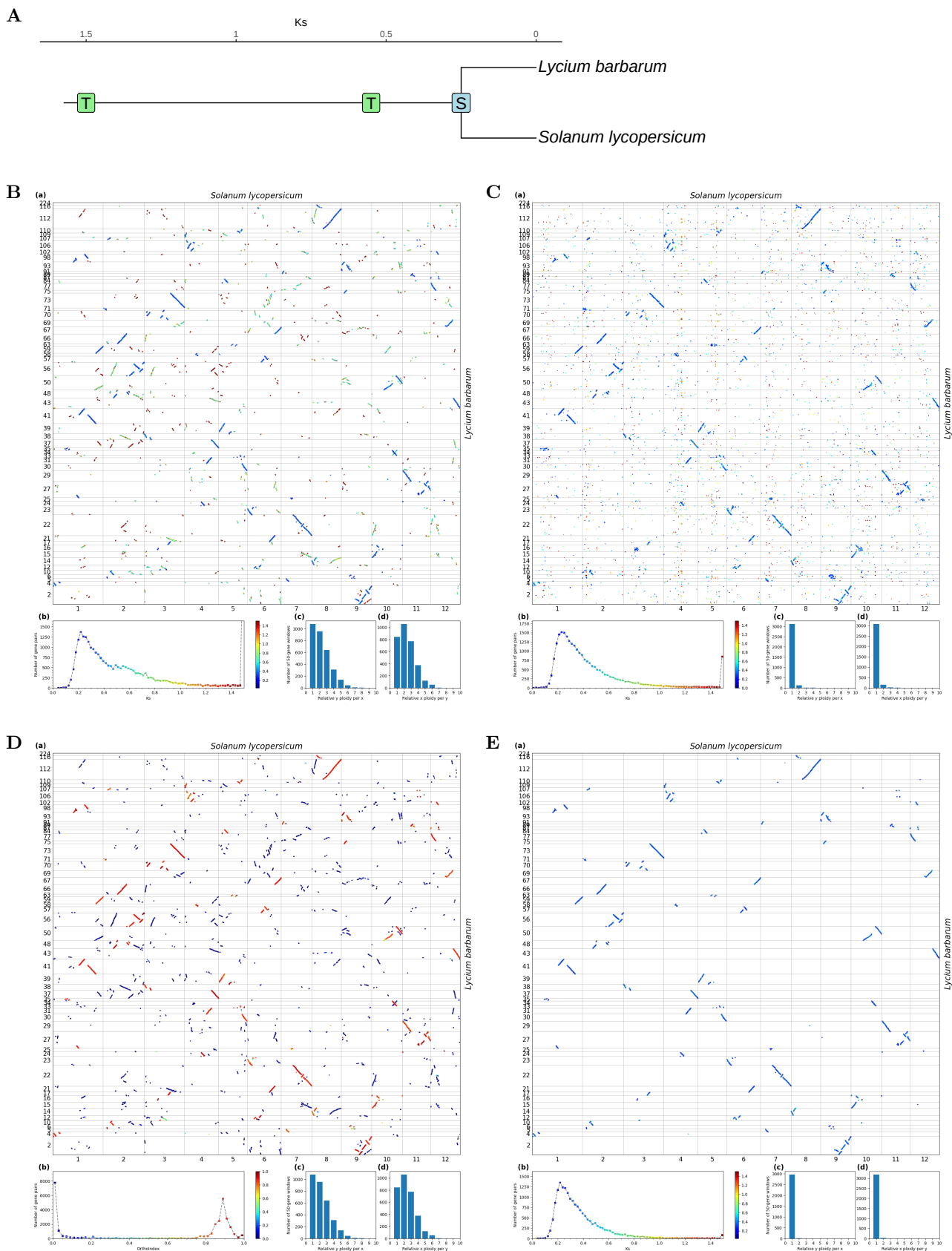


Fig. S 49. Orthology Index in genome evolution of species *Solanum lycopersicum* and *Lycium barbarum*. Refer to **Fig.1** for detailed descriptions.

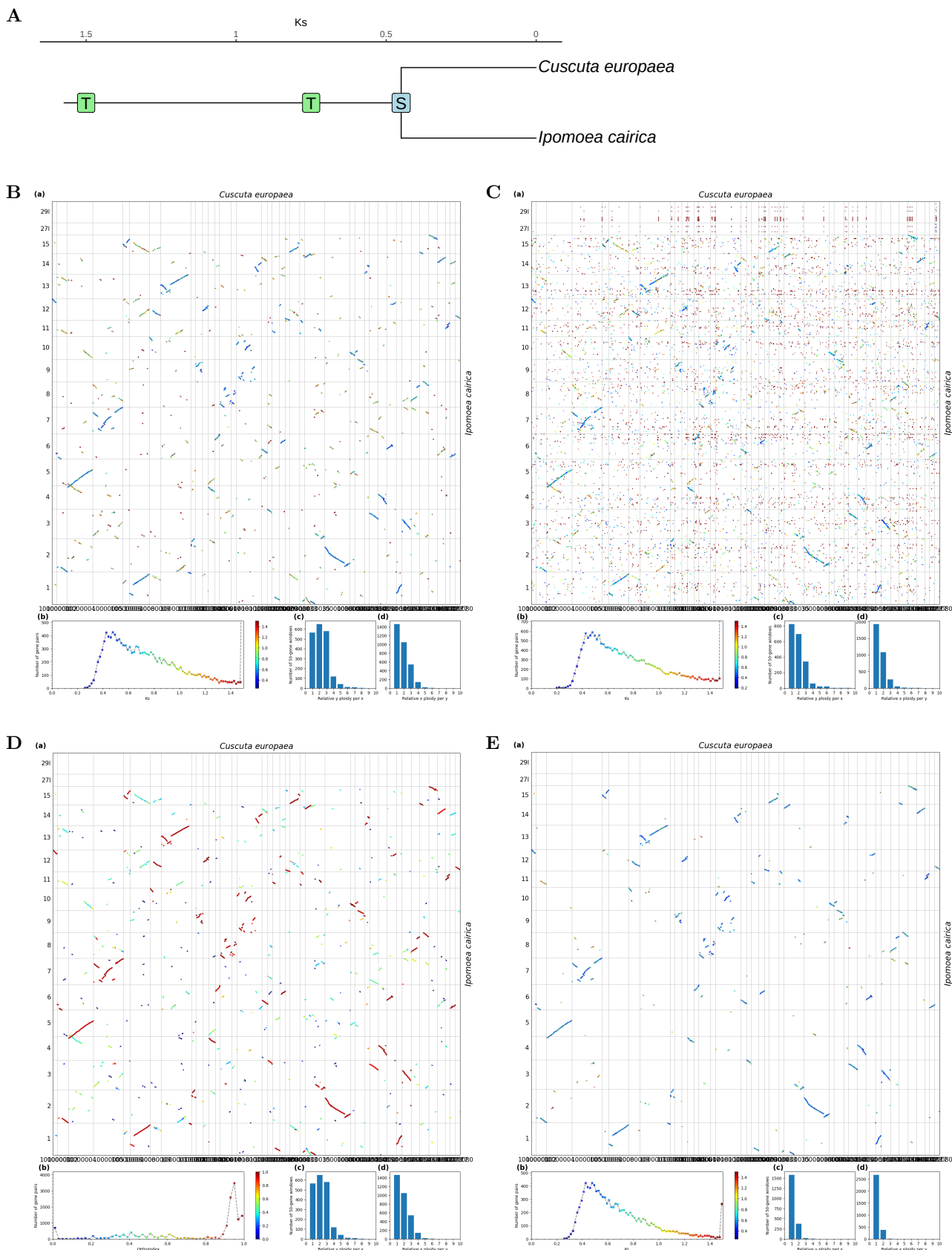


Fig. S 50. Orthology Index in genome evolution of species *Ipomoea cairica* and *Cuscuta europaea*. Refer to **Fig.1** for detailed descriptions.

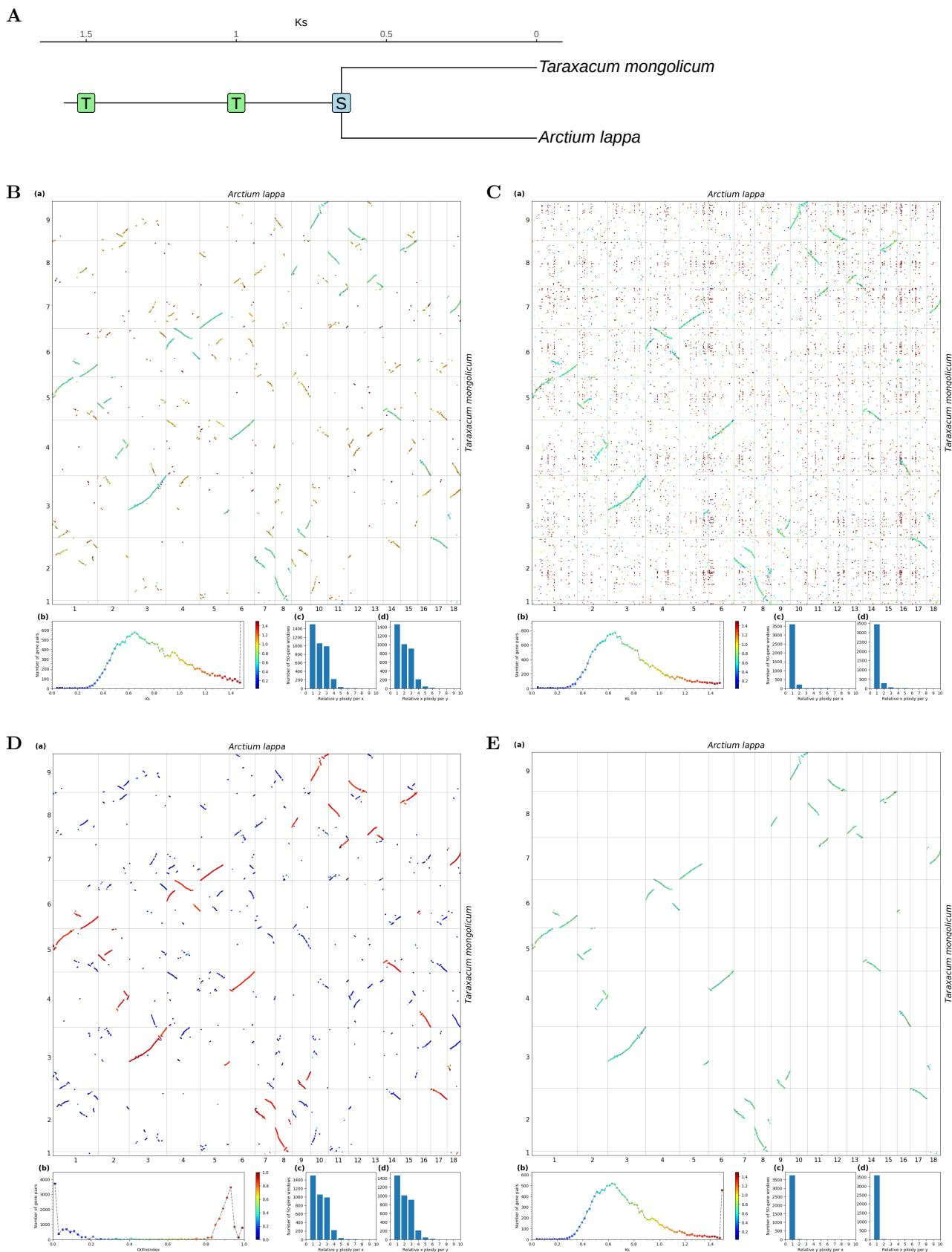


Fig. S 51. Orthology Index in genome evolution of species *Arctium lappa* and *Taraxacum mongolicum*. Refer to **Fig.1** for detailed descriptions.

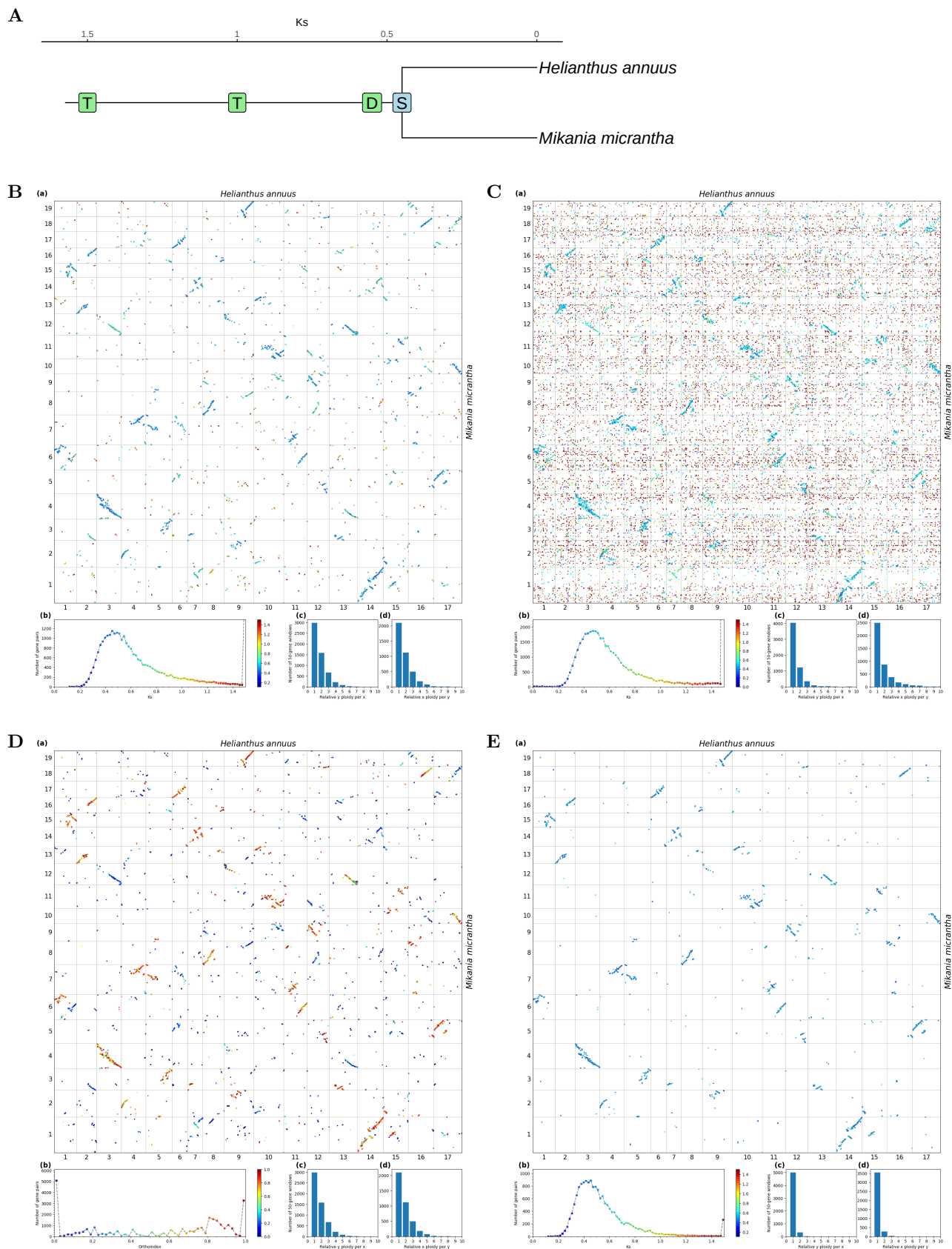


Fig. S 52. Orthology Index in genome evolution of species *Mikania micrantha* and *Helianthus annuus*. Refer to **Fig.1** for detailed descriptions.

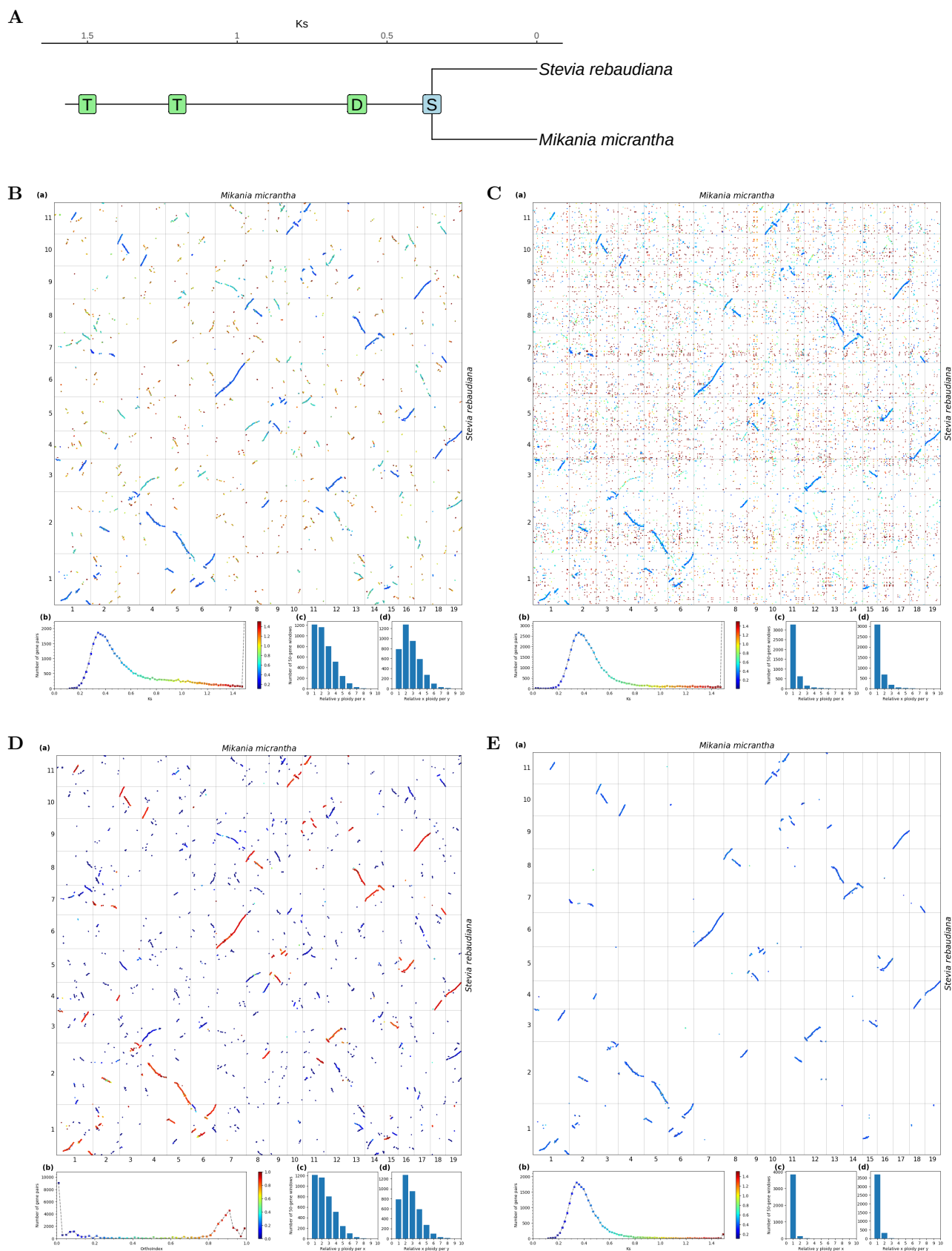


Fig. S 53. Orthology Index in genome evolution of species *Mikania micrantha* and *Stevia rebaudiana*. Refer to **Fig.1** for detailed descriptions.

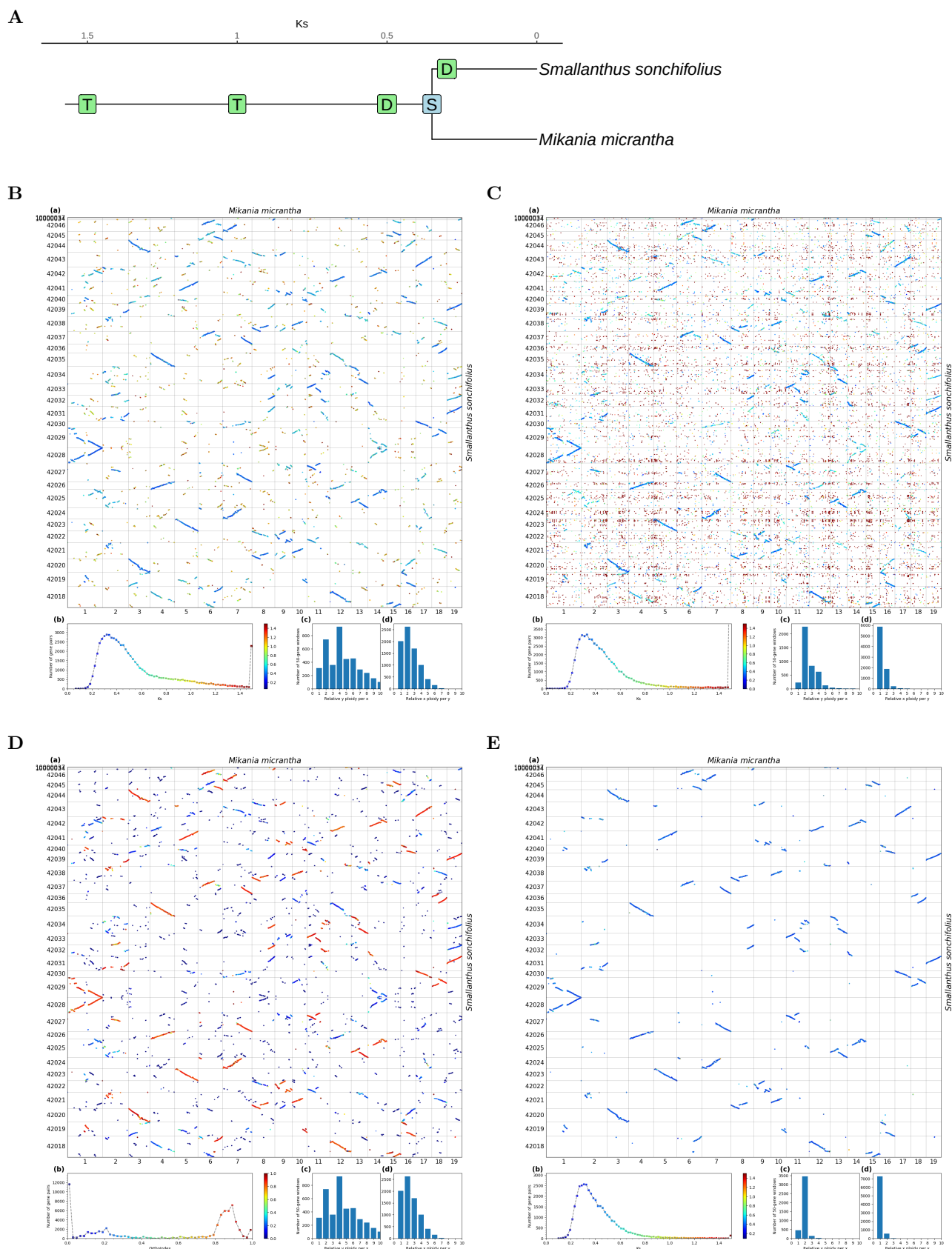


Fig. S 54. Orthology Index in genome evolution of species *Mikania micrantha* and *Smallanthus sonchifolius*. Refer to **Fig.1** for detailed descriptions.

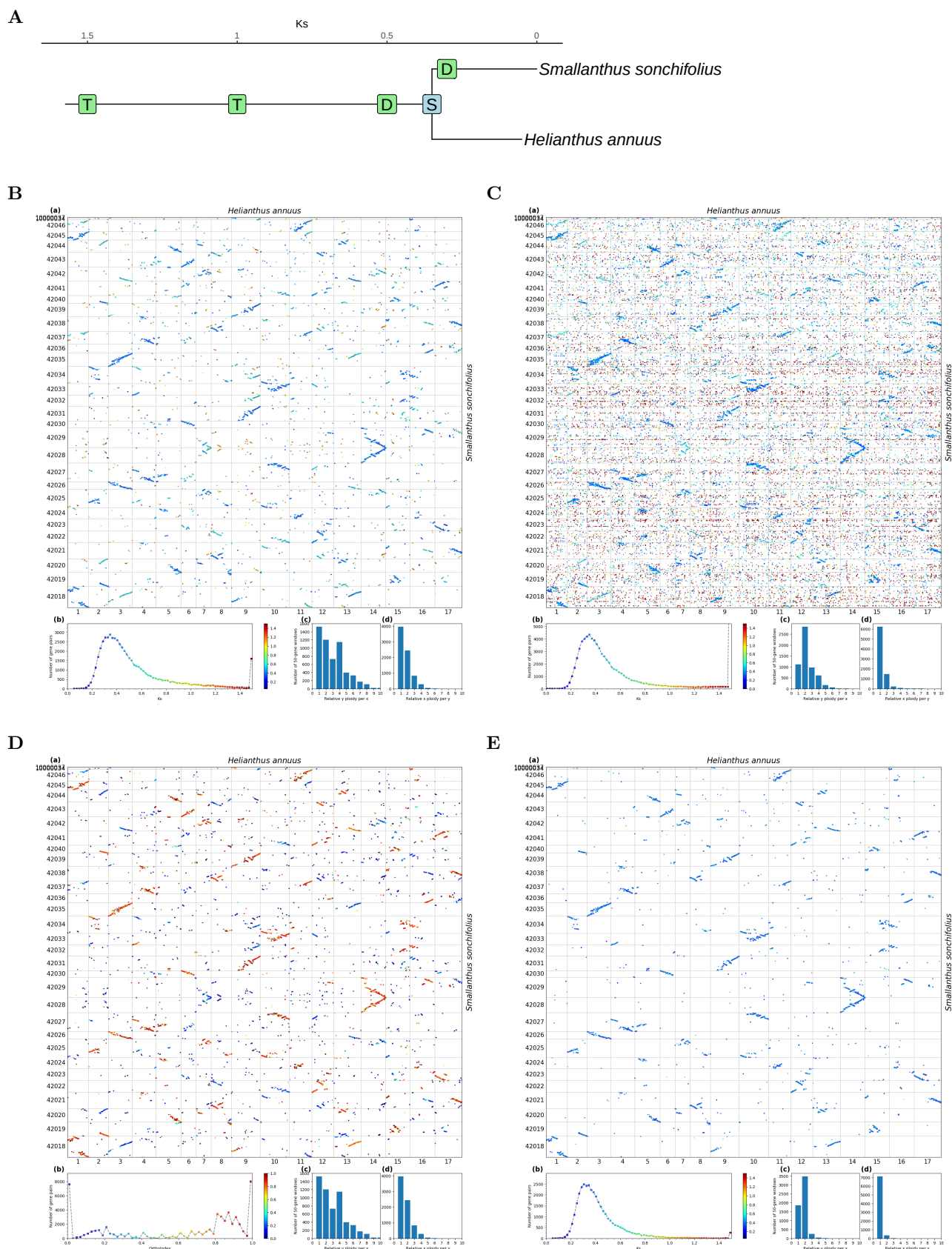


Fig. S 55. Orthology Index in genome evolution of species *Helianthus annuus* and *Smallanthus sonchifolius*. Refer to **Fig.1** for detailed descriptions.

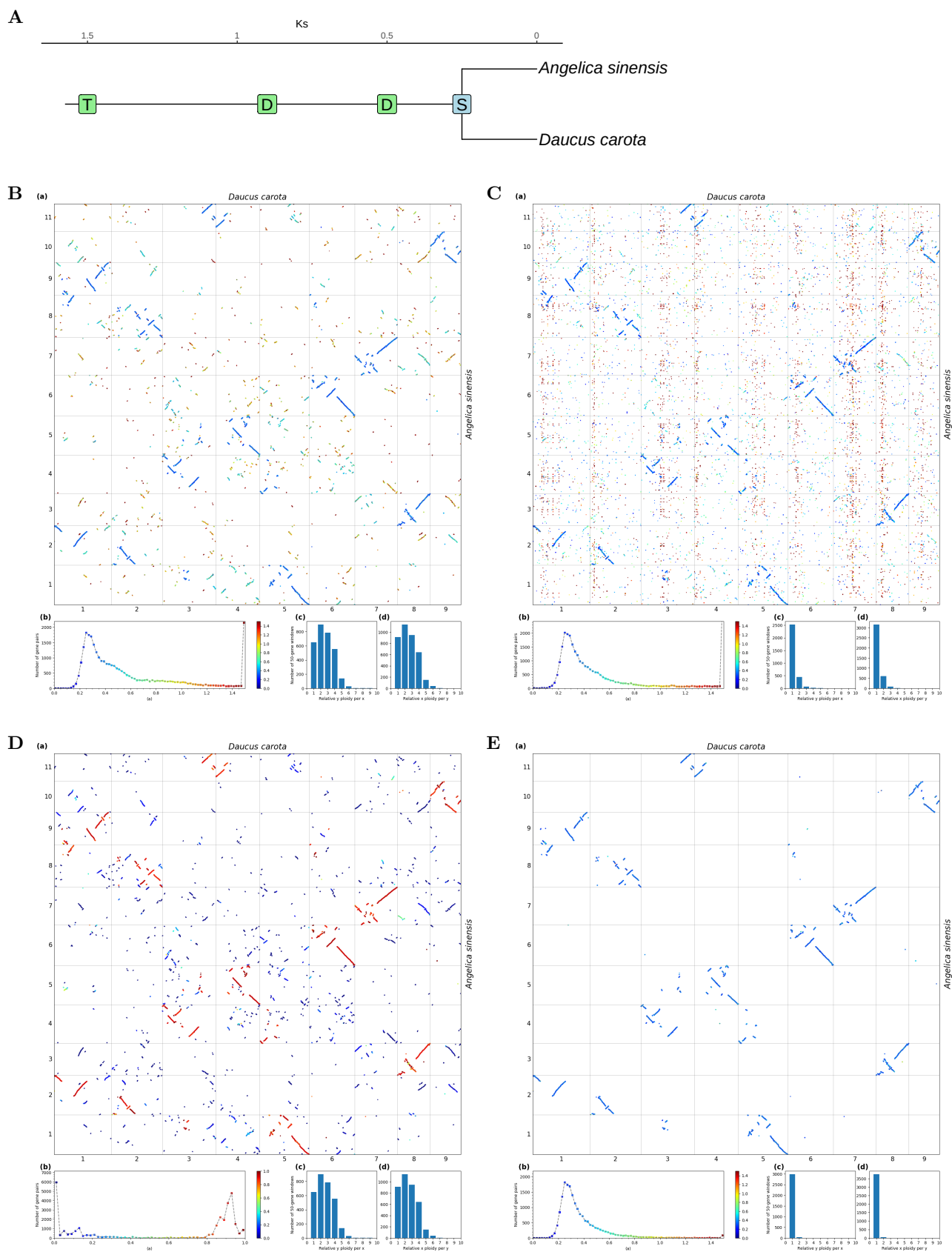


Fig. S 56. Orthology Index in genome evolution of species *Daucus carota* and *Angelica sinensis*. Refer to **Fig.1** for detailed descriptions.

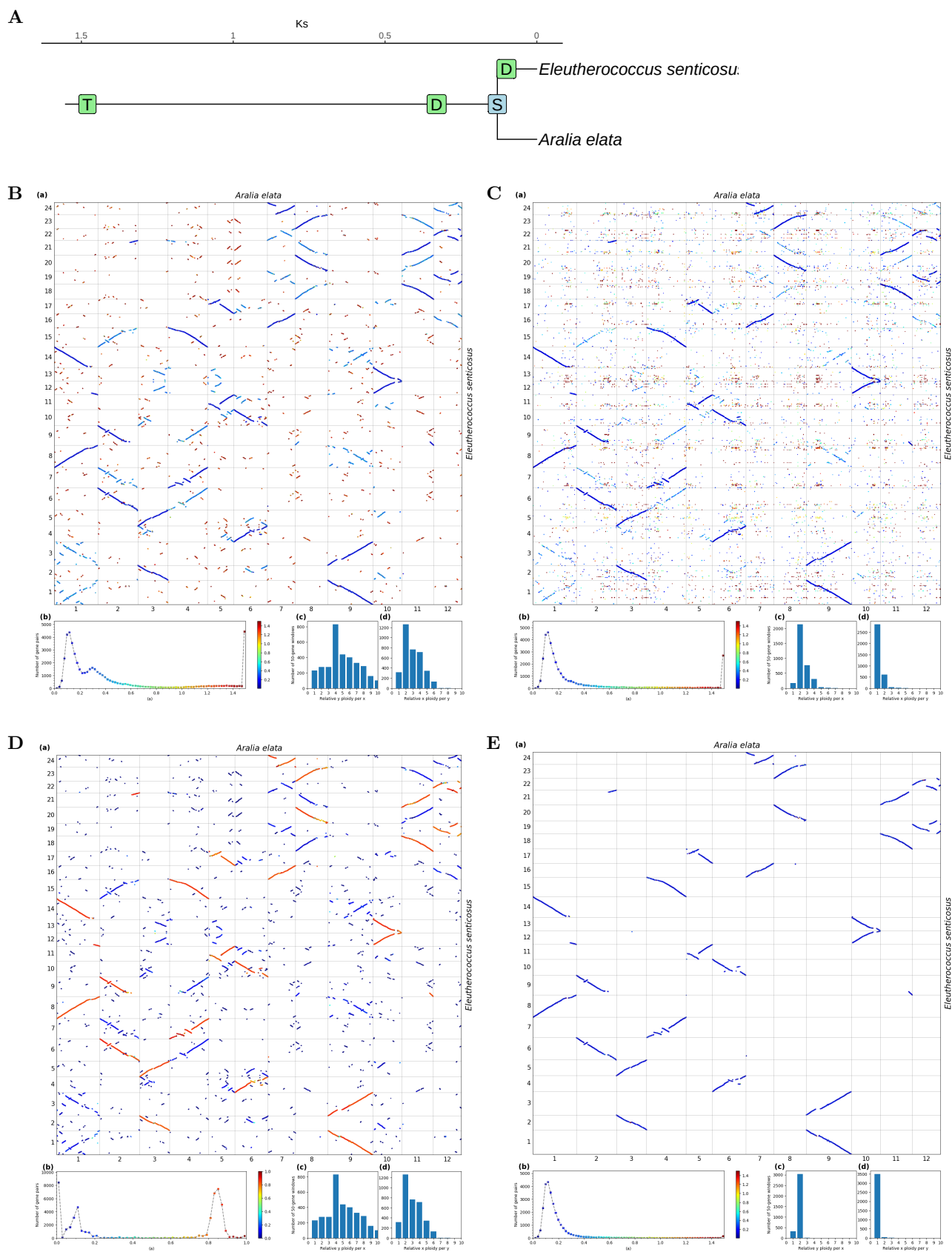


Fig. S 57. Orthology Index in genome evolution of species *Aralia elata* and *Eleutherococcus senticosus*. Refer to Fig.1 for detailed descriptions.

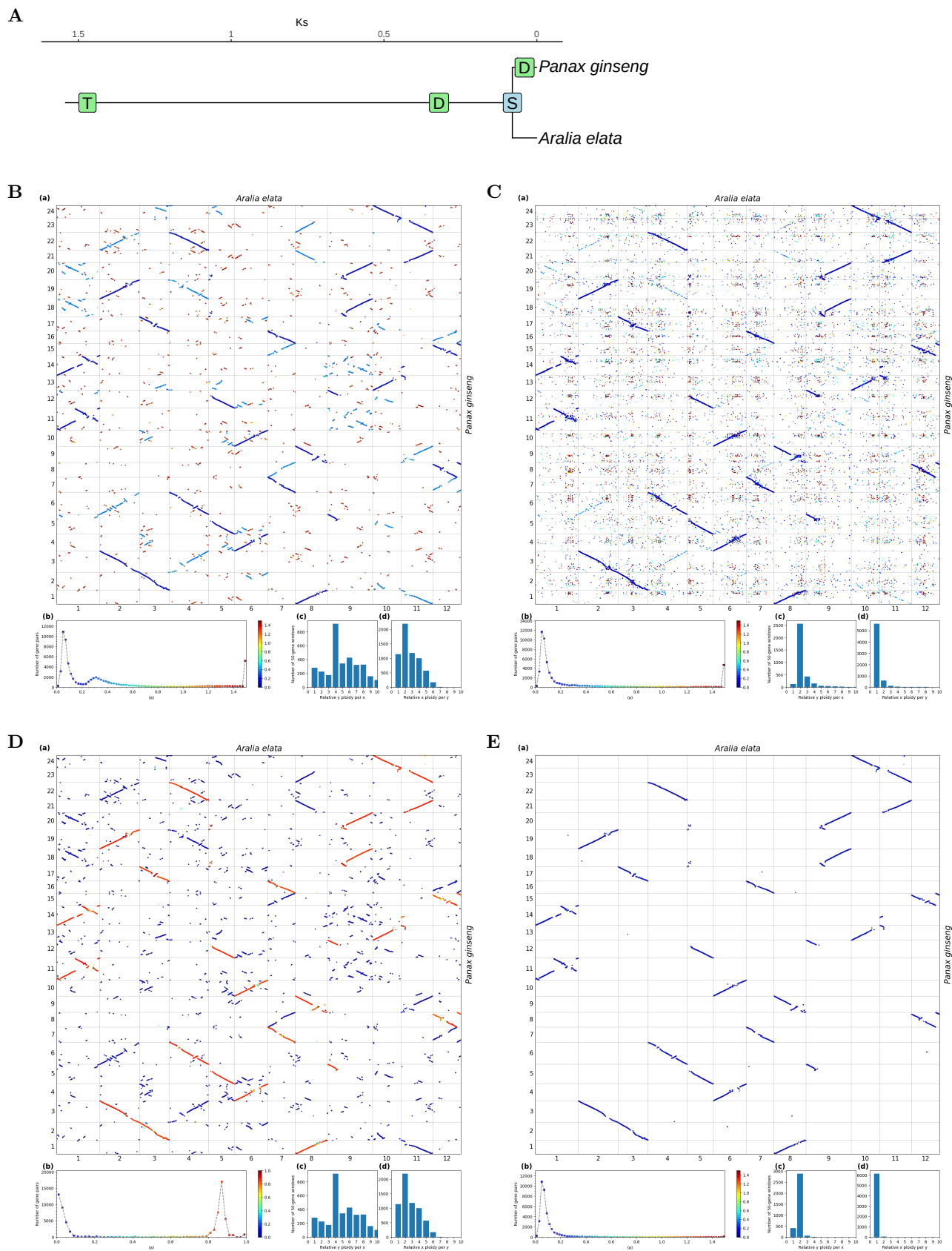


Fig. S 58. Orthology Index in genome evolution of species *Aralia elata* and *Panax ginseng*. Refer to **Fig.1** for detailed descriptions.

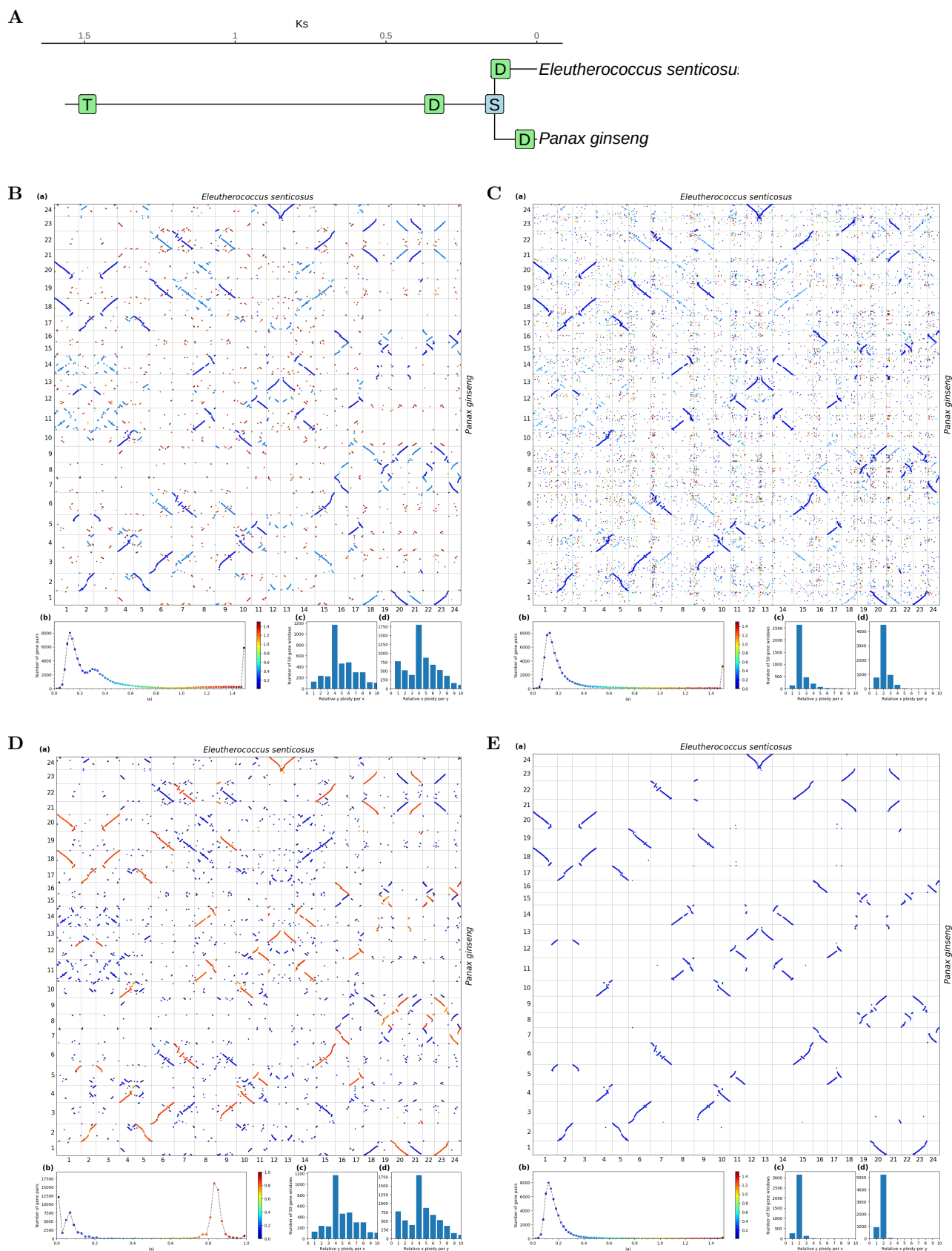


Fig. S 59. Orthology Index in genome evolution of species *Panax ginseng* and *Eleutherococcus senticosus*. Refer to Fig.1 for detailed descriptions.

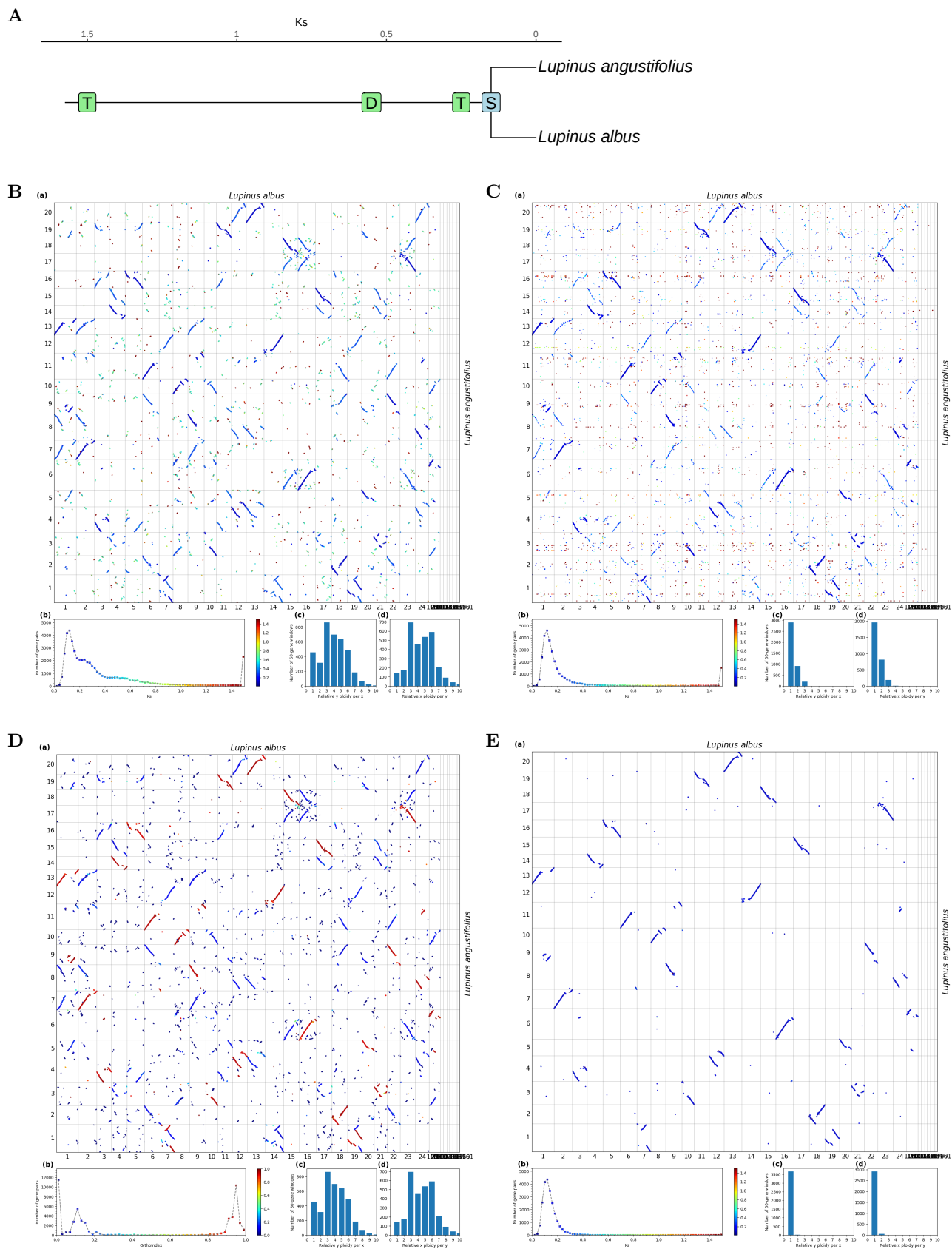


Fig. S 60. Orthology Index in genome evolution of species *Lupinus albus* and *Lupinus angustifolius*. Refer to **Fig.1** for detailed descriptions.

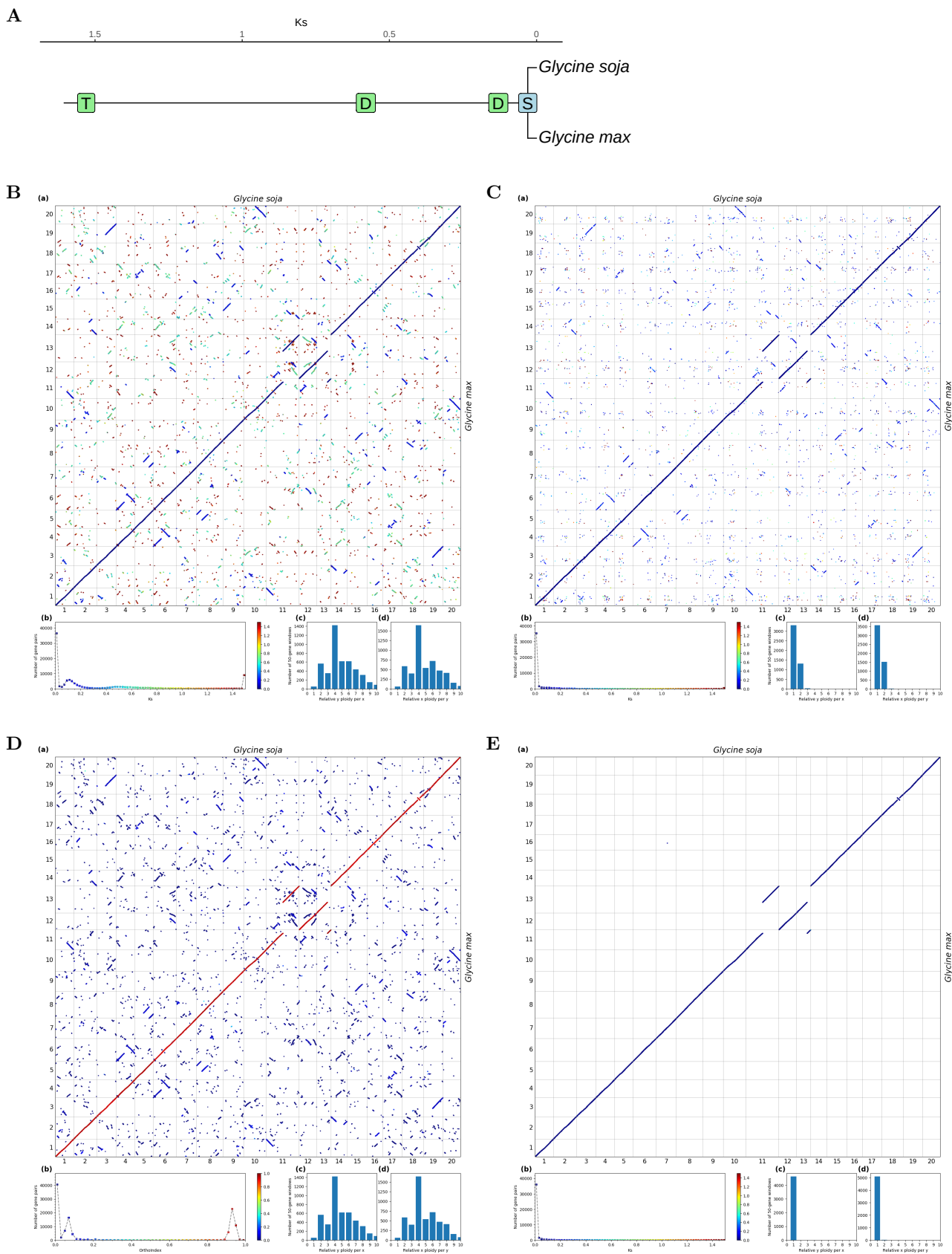


Fig. S 61. Orthology Index in genome evolution of species *Glycine max* and *Glycine soja*. Refer to **Fig.1** for detailed descriptions.

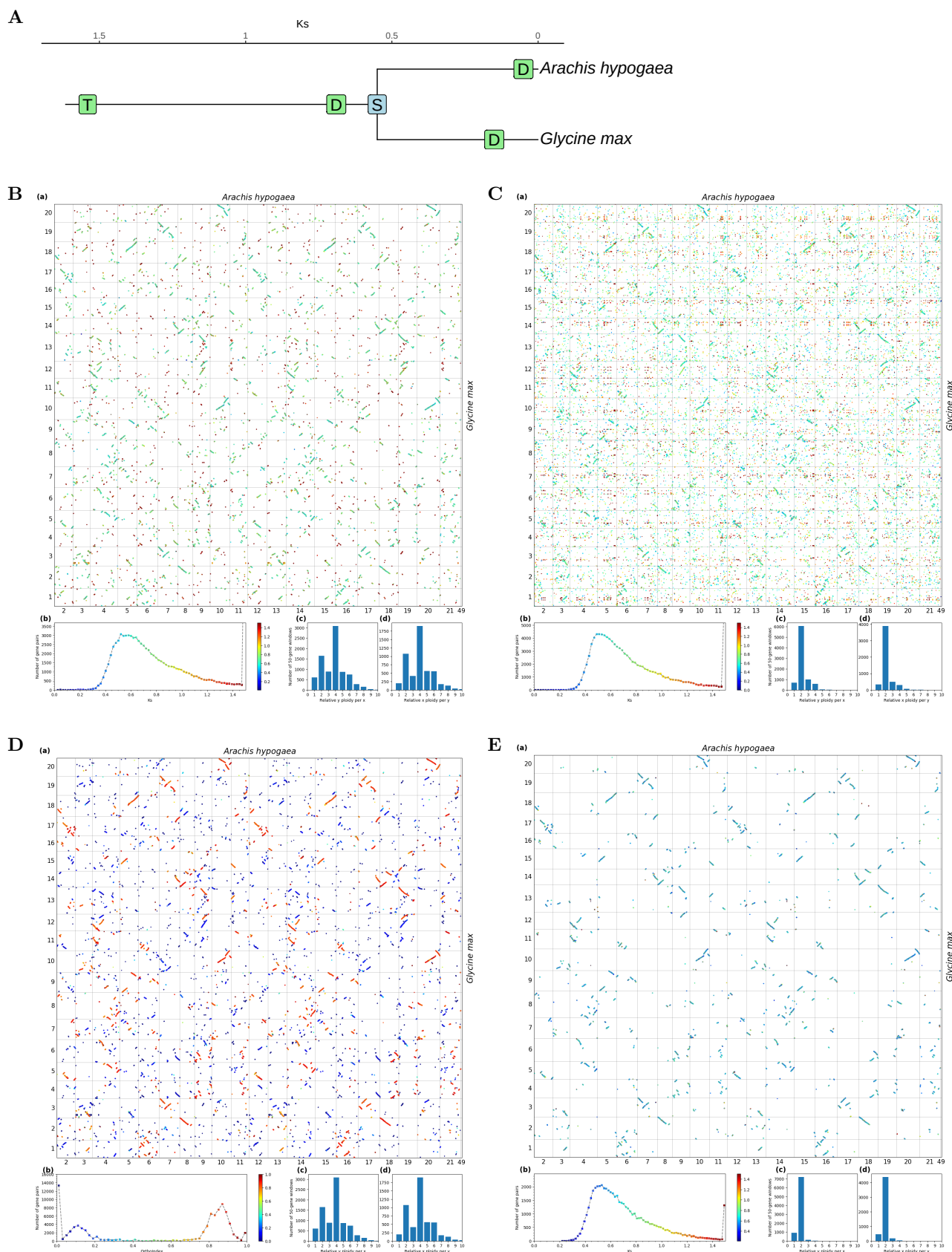


Fig. S 62. Orthology Index in genome evolution of species *Glycine max* and *Arachis hypogaea*. Refer to **Fig.1** for detailed descriptions.

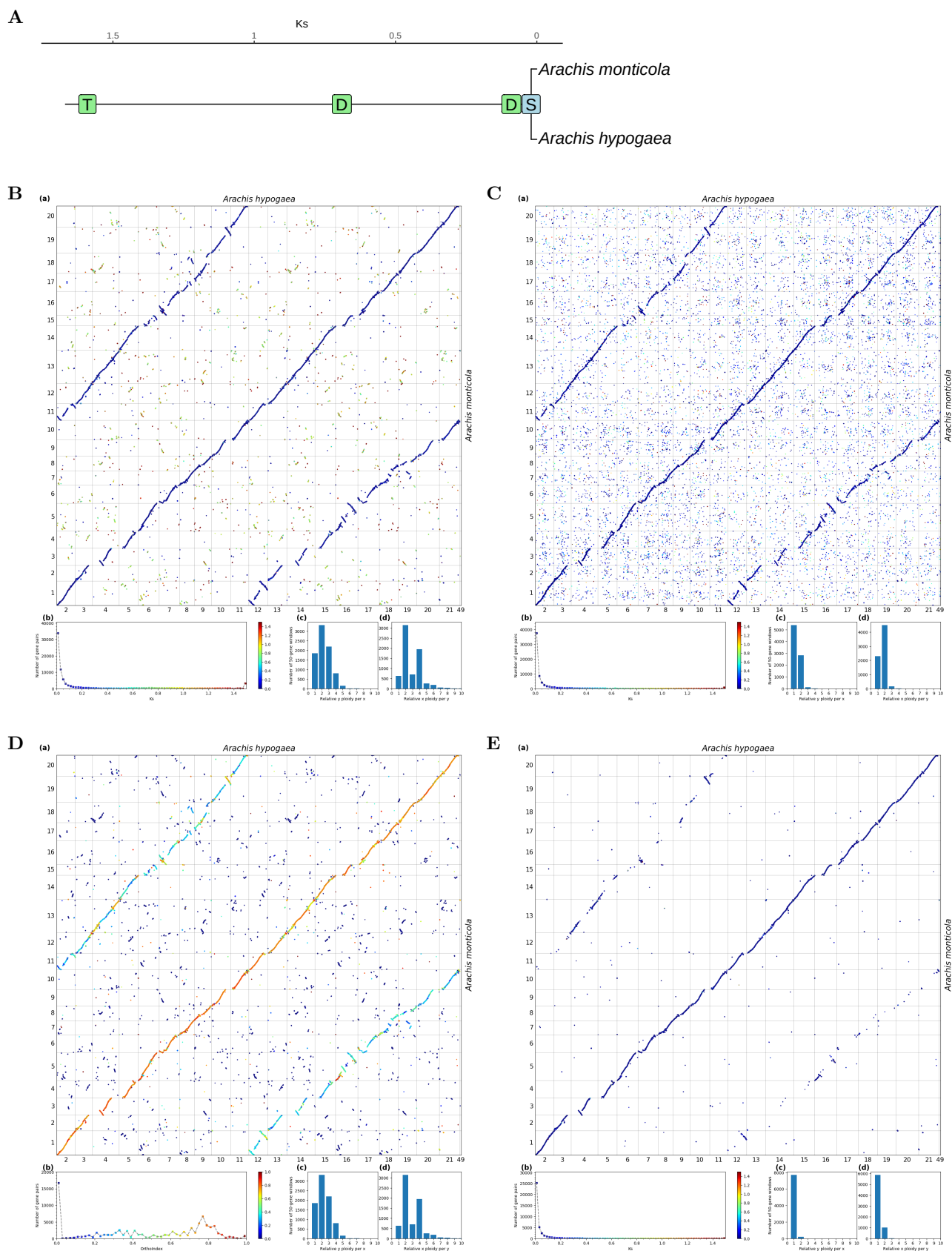


Fig. S 63. Orthology Index in genome evolution of species *Arachis hypogaea* and *Arachis monticola*. Refer to **Fig.1** for detailed descriptions.

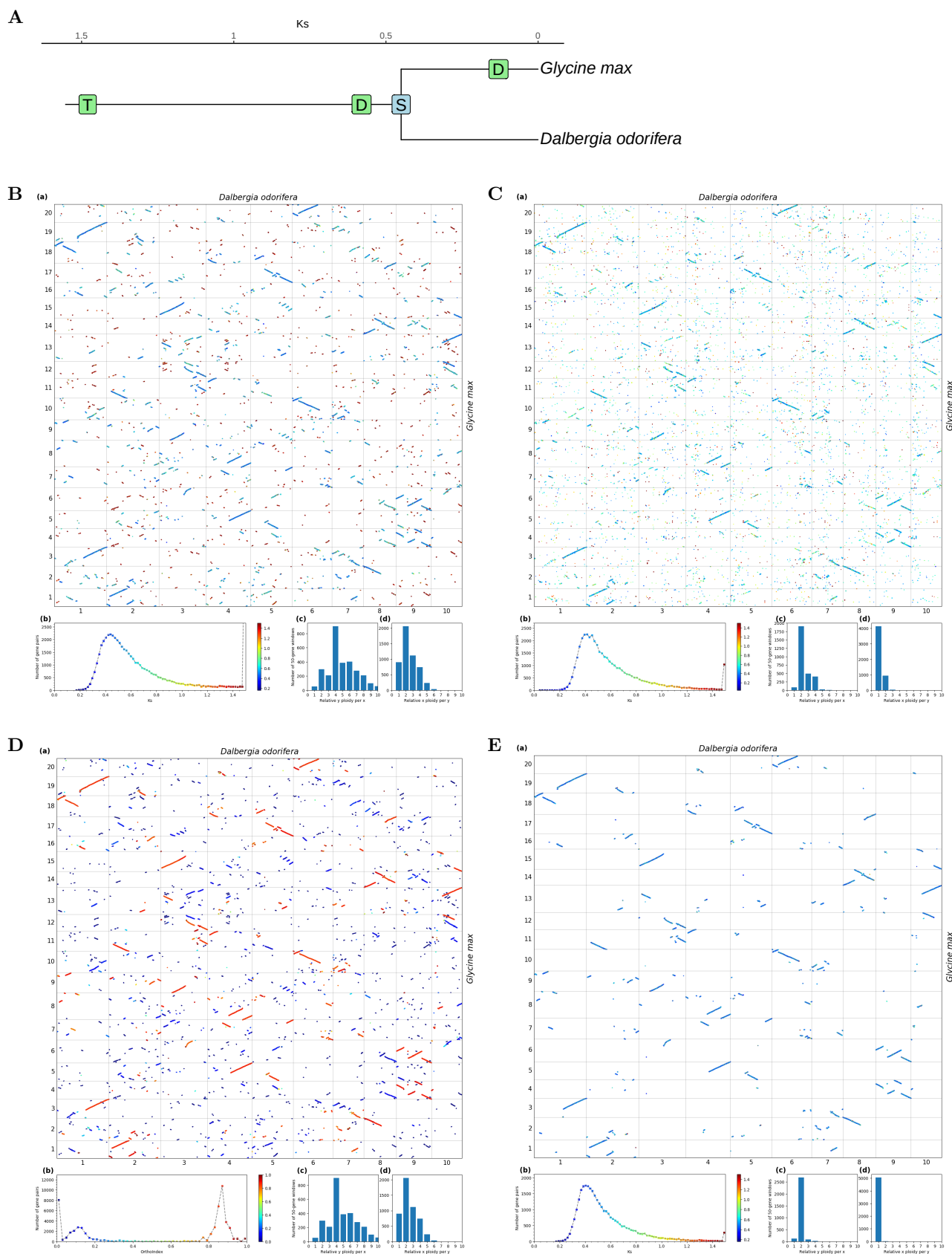


Fig. S 64. Orthology Index in genome evolution of species *Dalbergia odorifera* and *Glycine max*. Refer to **Fig.1** for detailed descriptions.

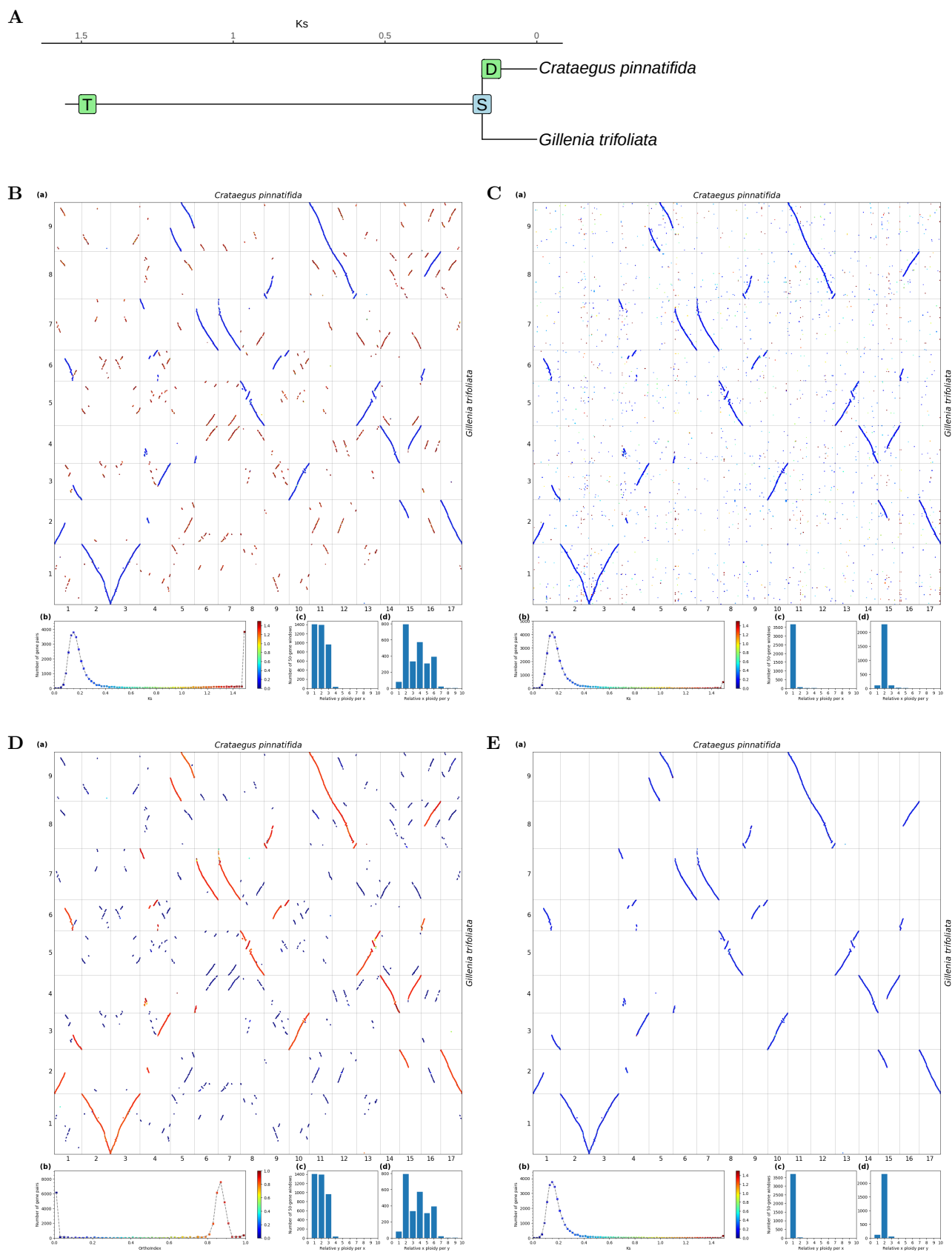


Fig. S 65. Orthology Index in genome evolution of species *Gillenia trifoliata* and *Crataegus pinnatifida*. Refer to **Fig.1** for detailed descriptions.

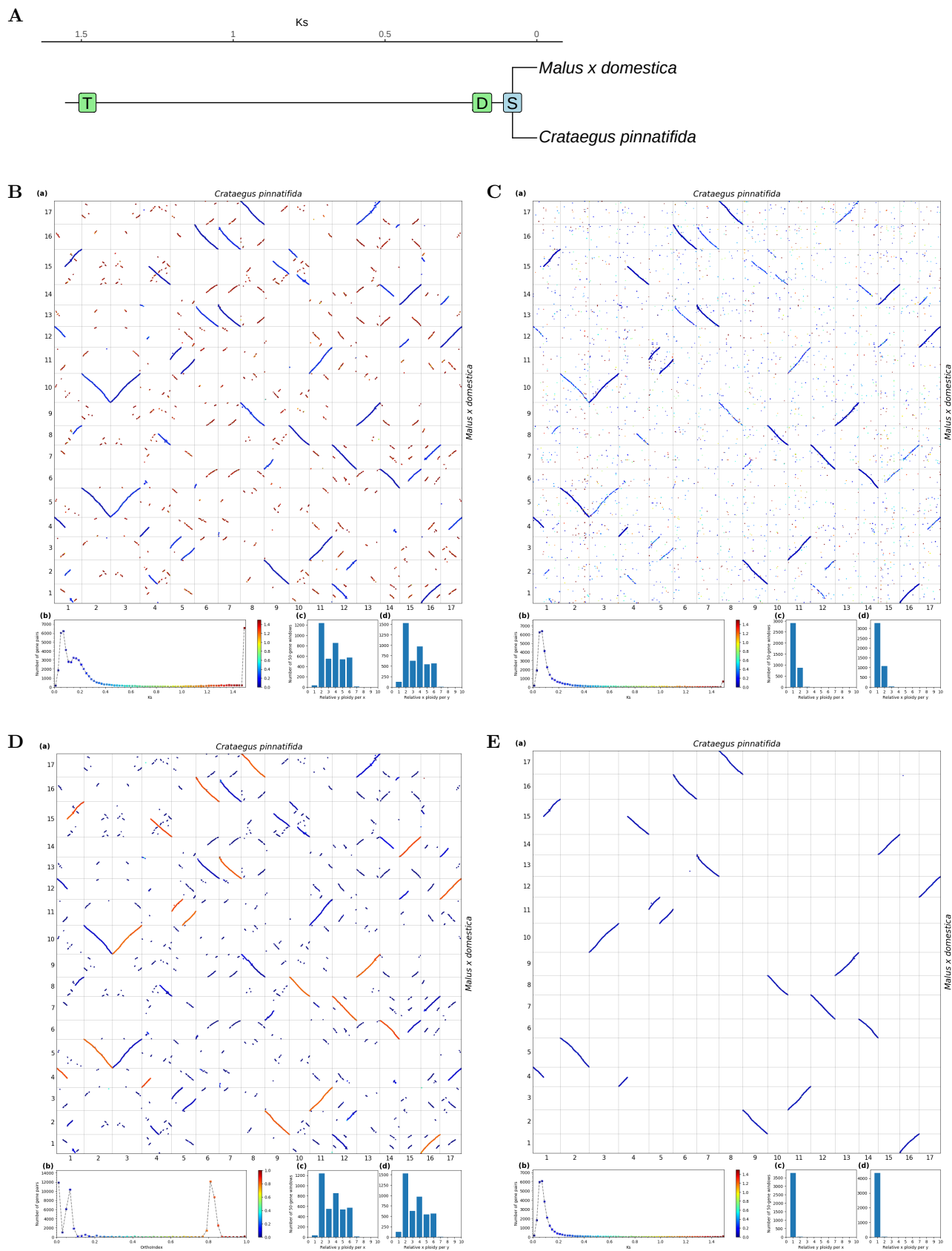


Fig. S 66. Orthology Index in genome evolution of species *Crataegus pinnatifida* and *Malus x domestica*. Refer to Fig.1 for detailed descriptions.

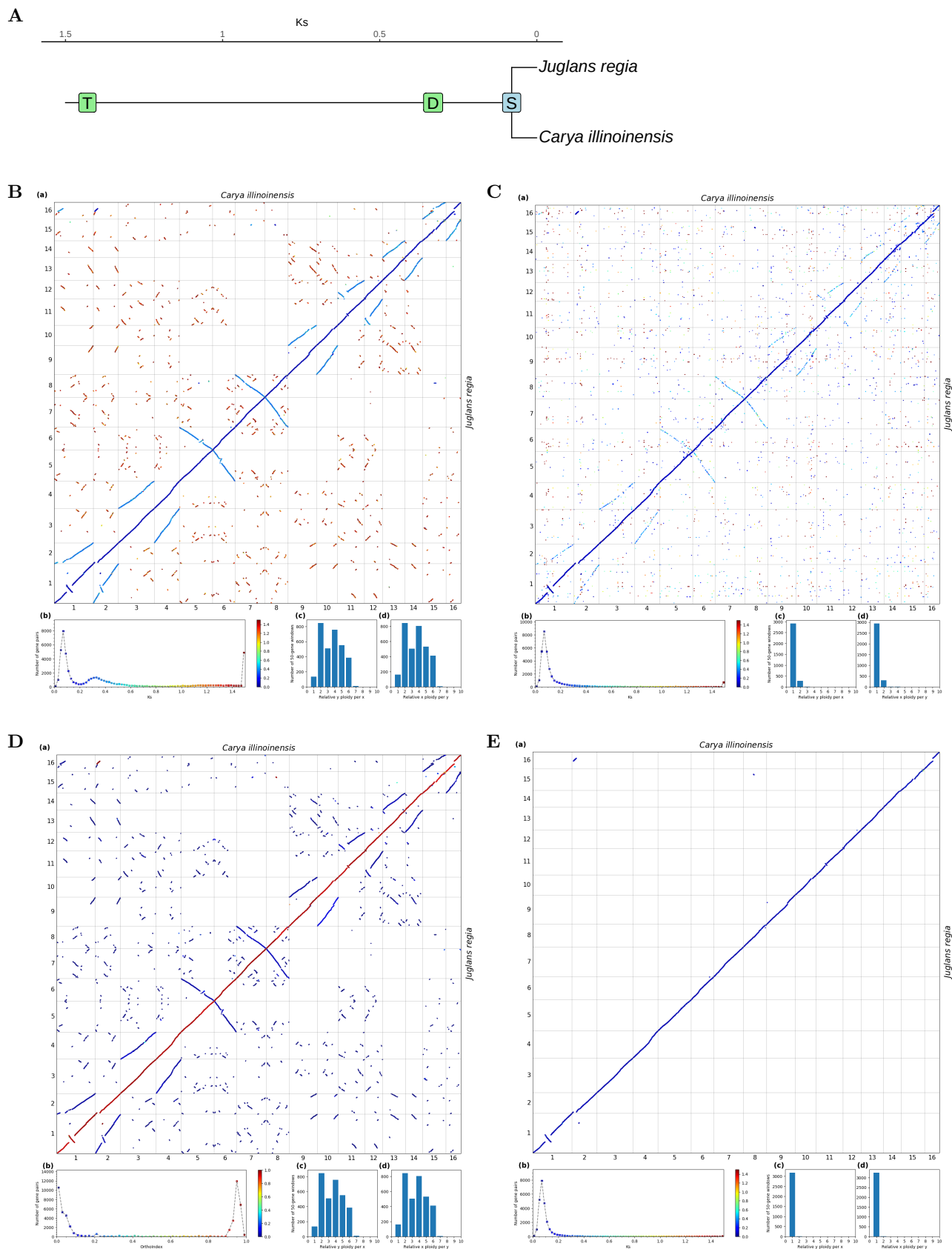


Fig. S 67. Orthology Index in genome evolution of species *Carya illinoensis* and *Juglans regia*. Refer to **Fig.1** for detailed descriptions.

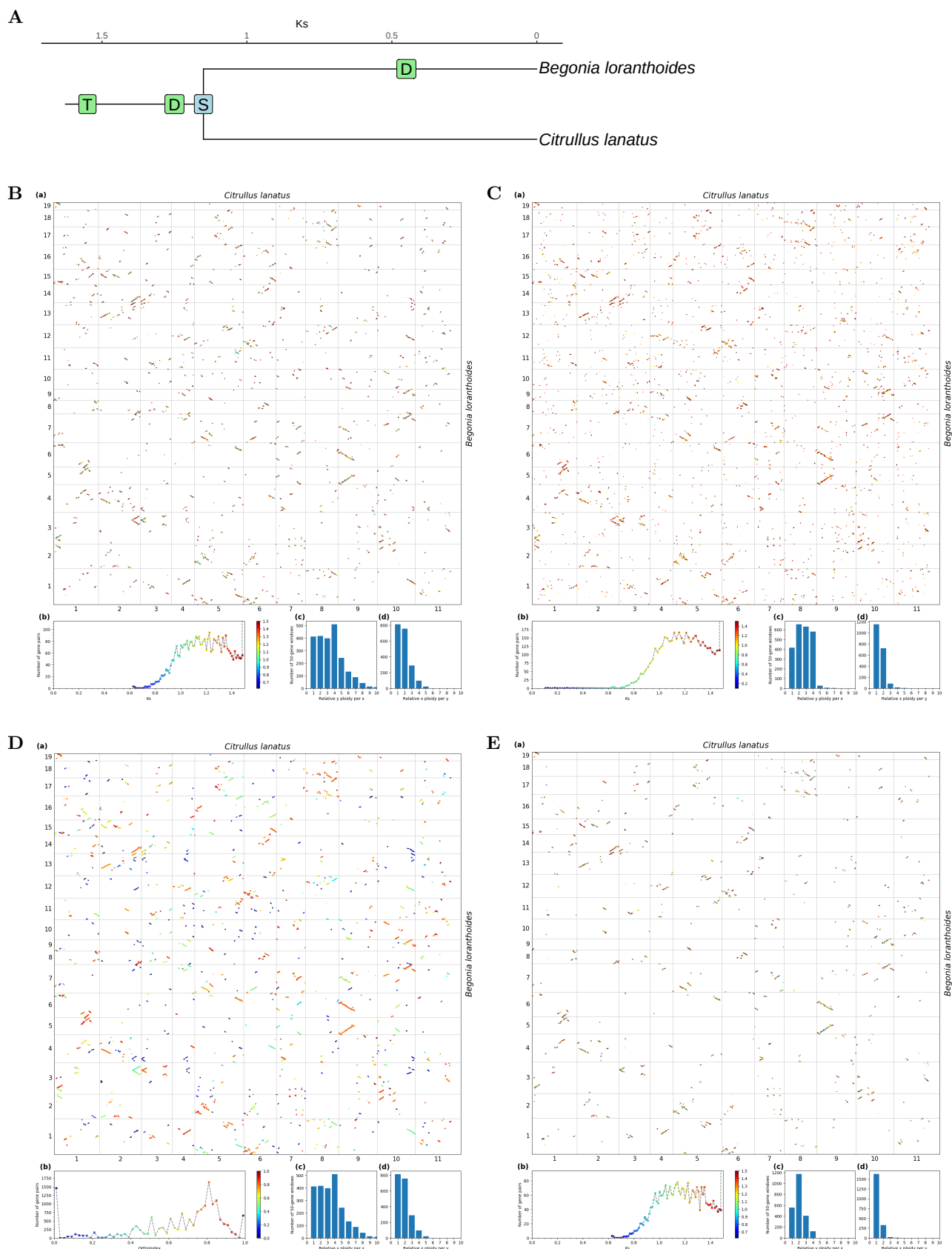


Fig. S 68. Orthology Index in genome evolution of species *Citrullus lanatus* and *Begonia lranthoides*. Refer to **Fig.1** for detailed descriptions.

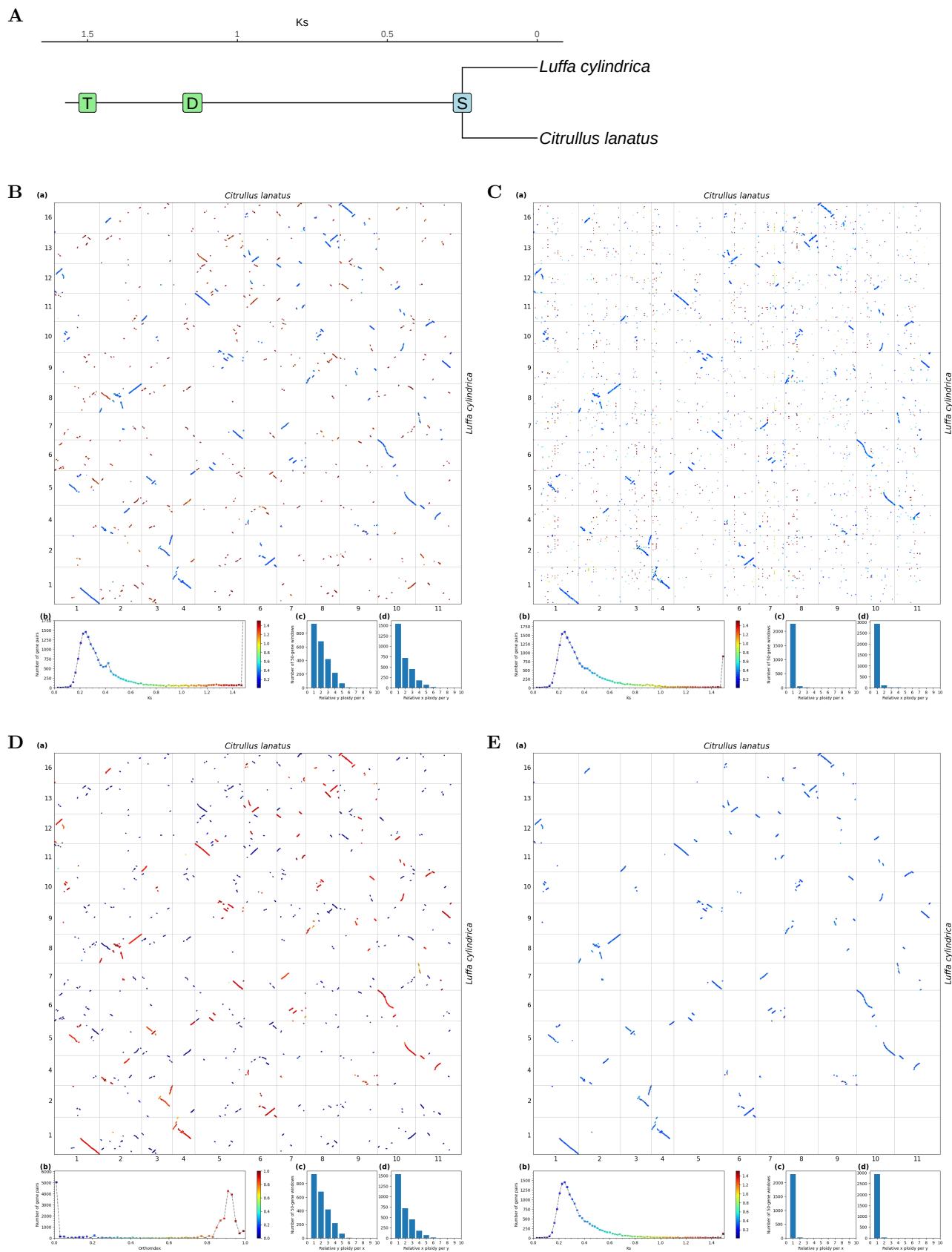


Fig. S 69. Orthology Index in genome evolution of species *Citrullus lanatus* and *Luffa cylindrica*. Refer to **Fig.1** for detailed descriptions.

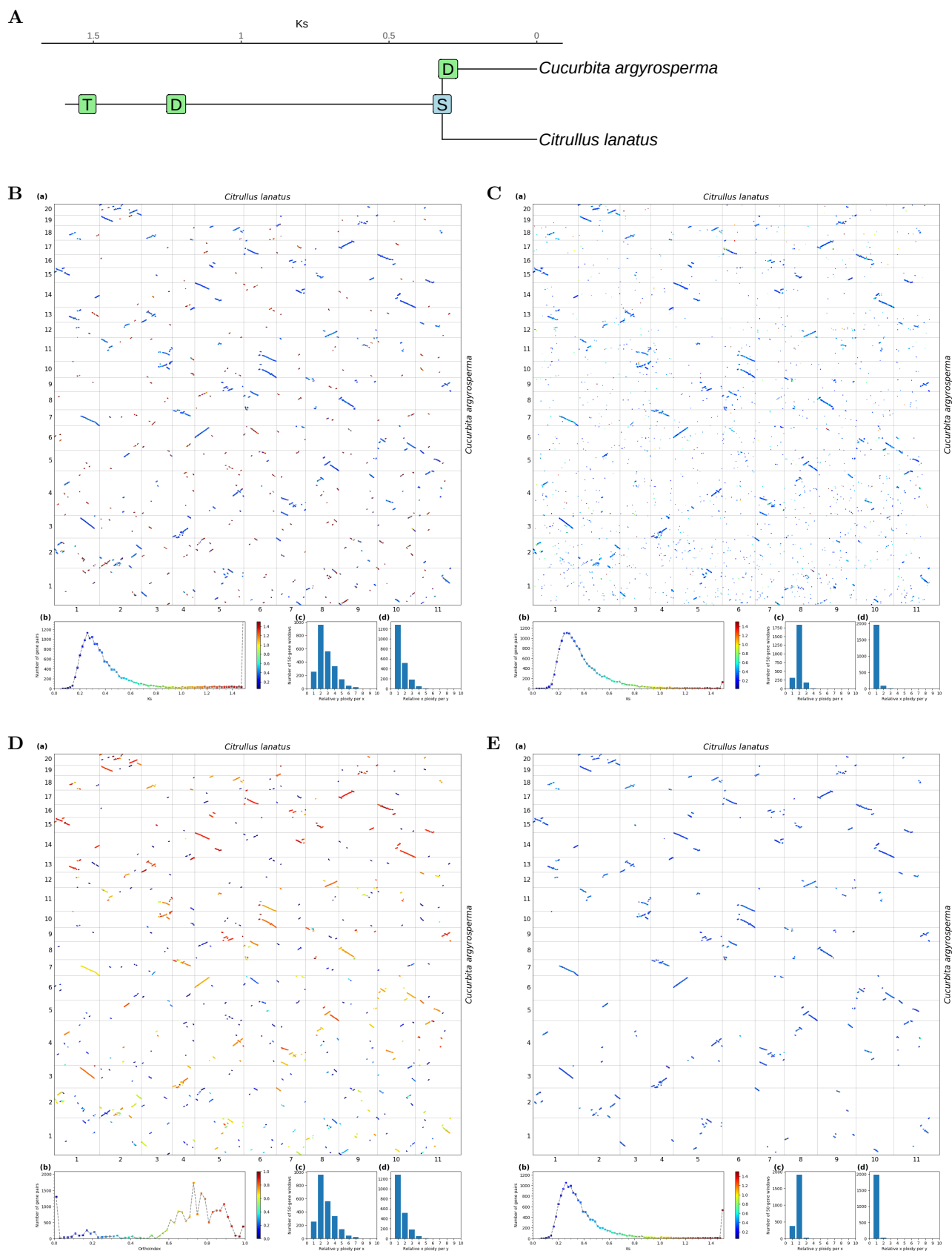


Fig. S 70. Orthology Index in genome evolution of species *Citrullus lanatus* and *Cucurbita argyrosperma*. Refer to **Fig.1** for detailed descriptions.

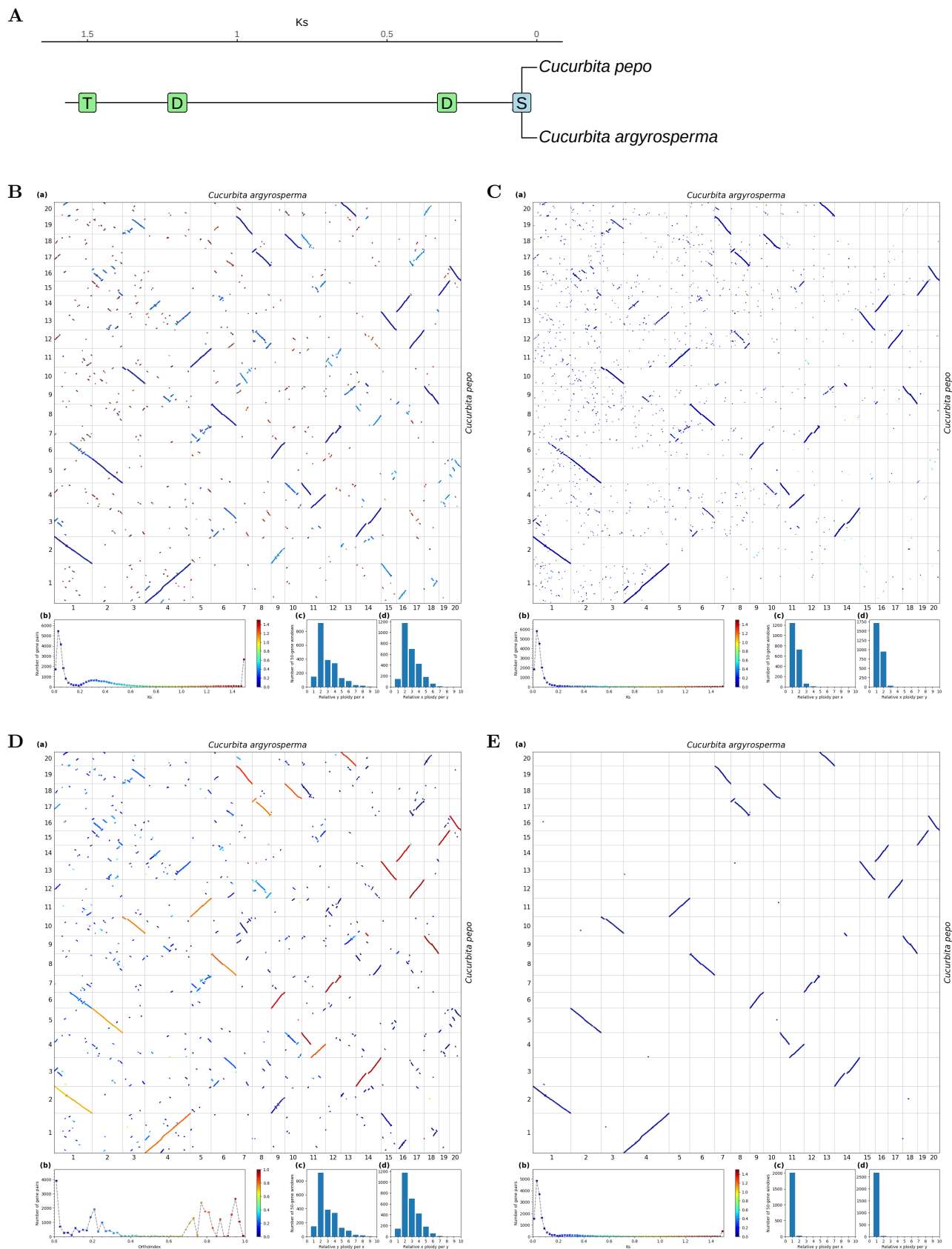


Fig. S 71. Orthology Index in genome evolution of species *Cucurbita argyrosperma* and *Cucurbita pepo*. Refer to **Fig.1** for detailed descriptions.

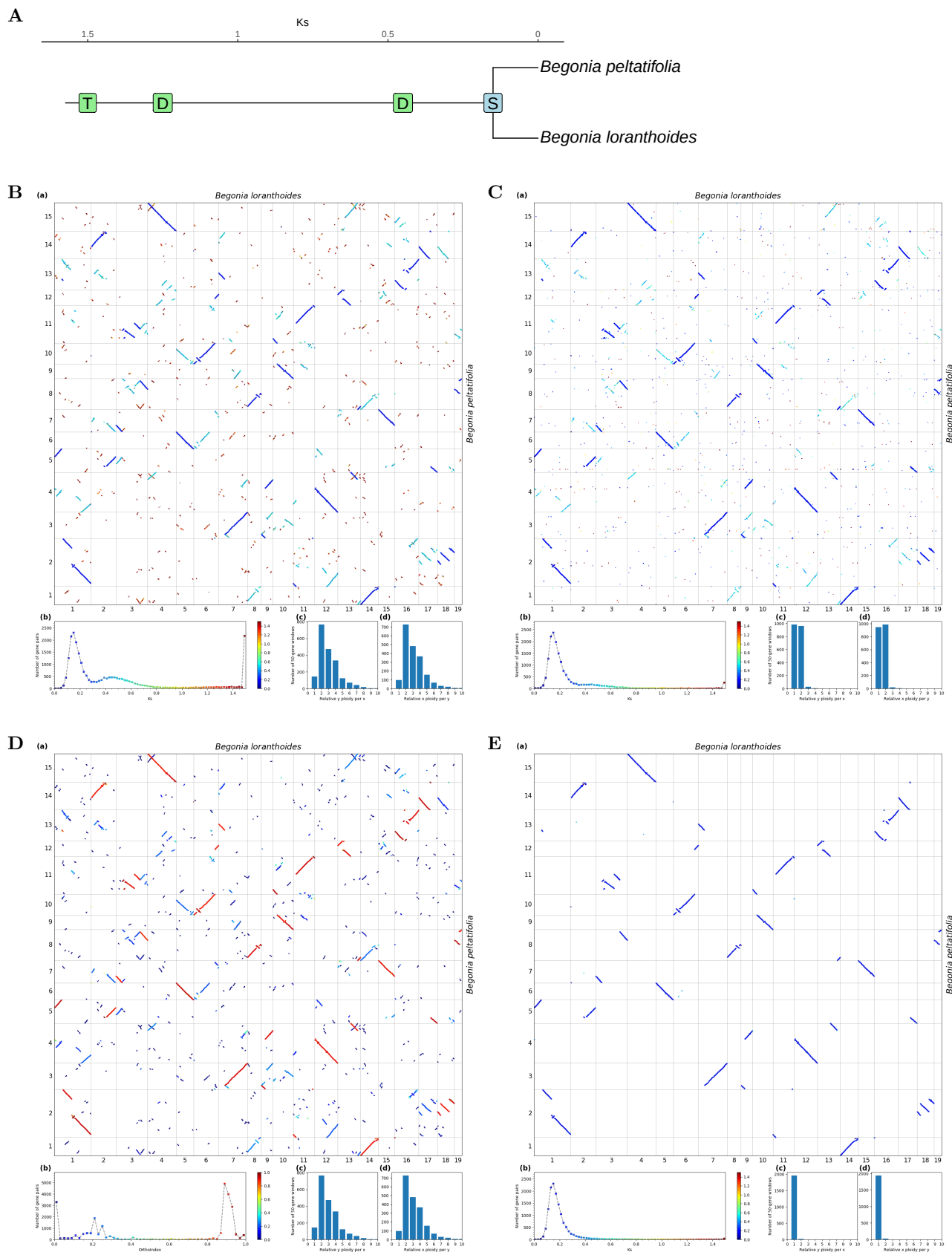


Fig. S 72. Orthology Index in genome evolution of species *Begonia loranthoides* and *Begonia peltatifolia*. Refer to **Fig.1** for detailed descriptions.

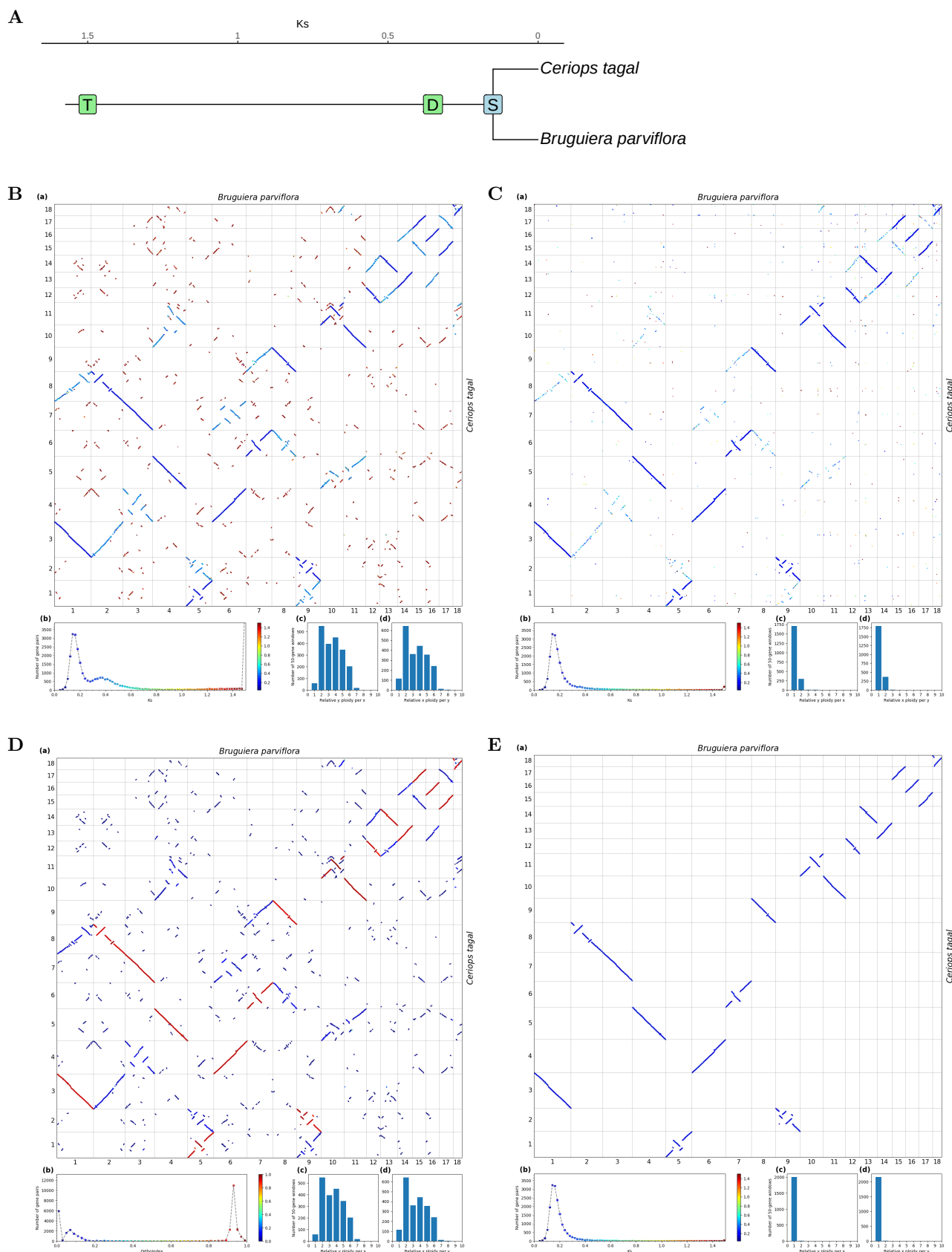
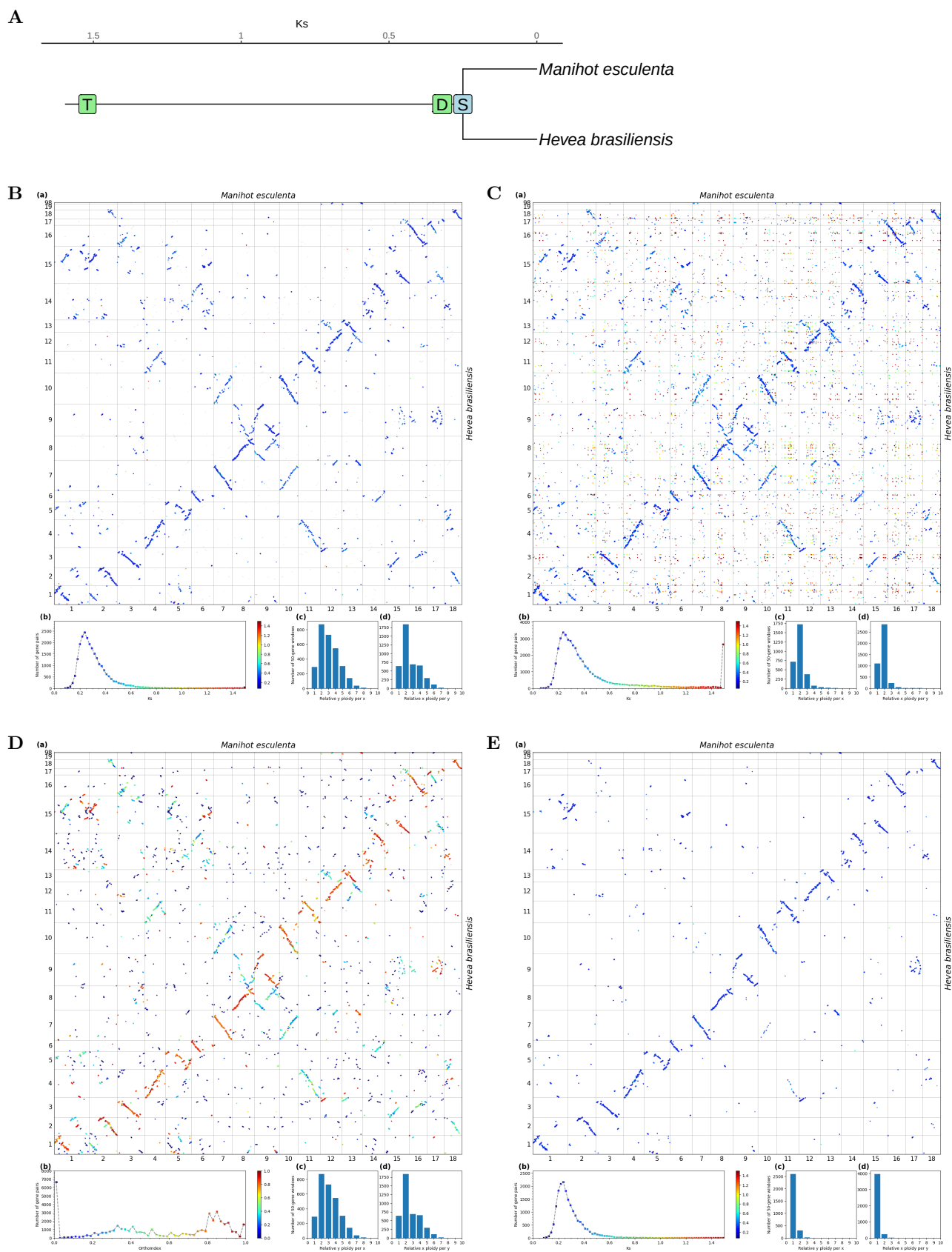


Fig. S 73. Orthology Index in genome evolution of species *Bruguiera parviflora* and *Ceriops tagal*. Refer to **Fig.1** for detailed descriptions.



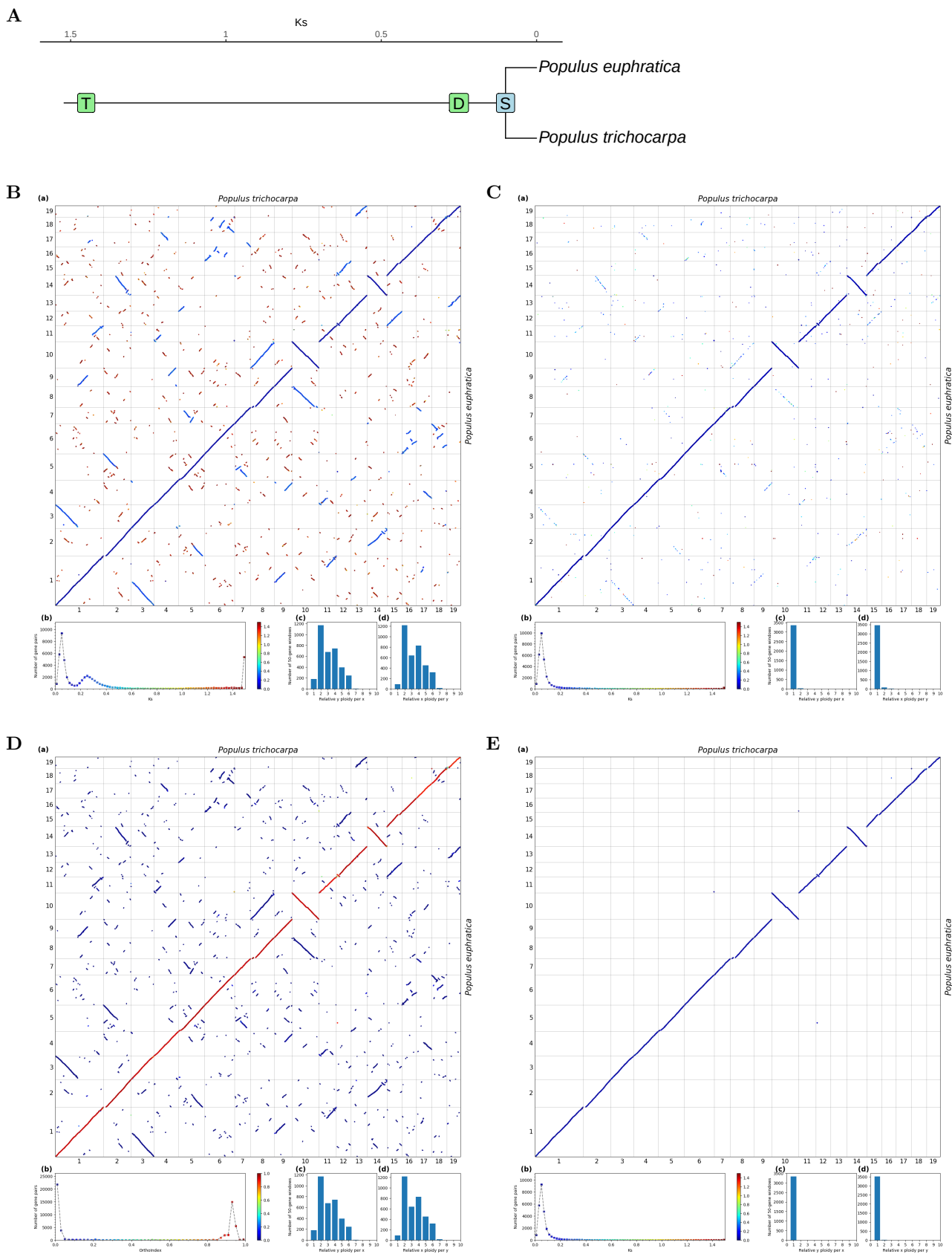


Fig. S 75. Orthology Index in genome evolution of species *Populus trichocarpa* and *Populus euphratica*. Refer to **Fig.1** for detailed descriptions.

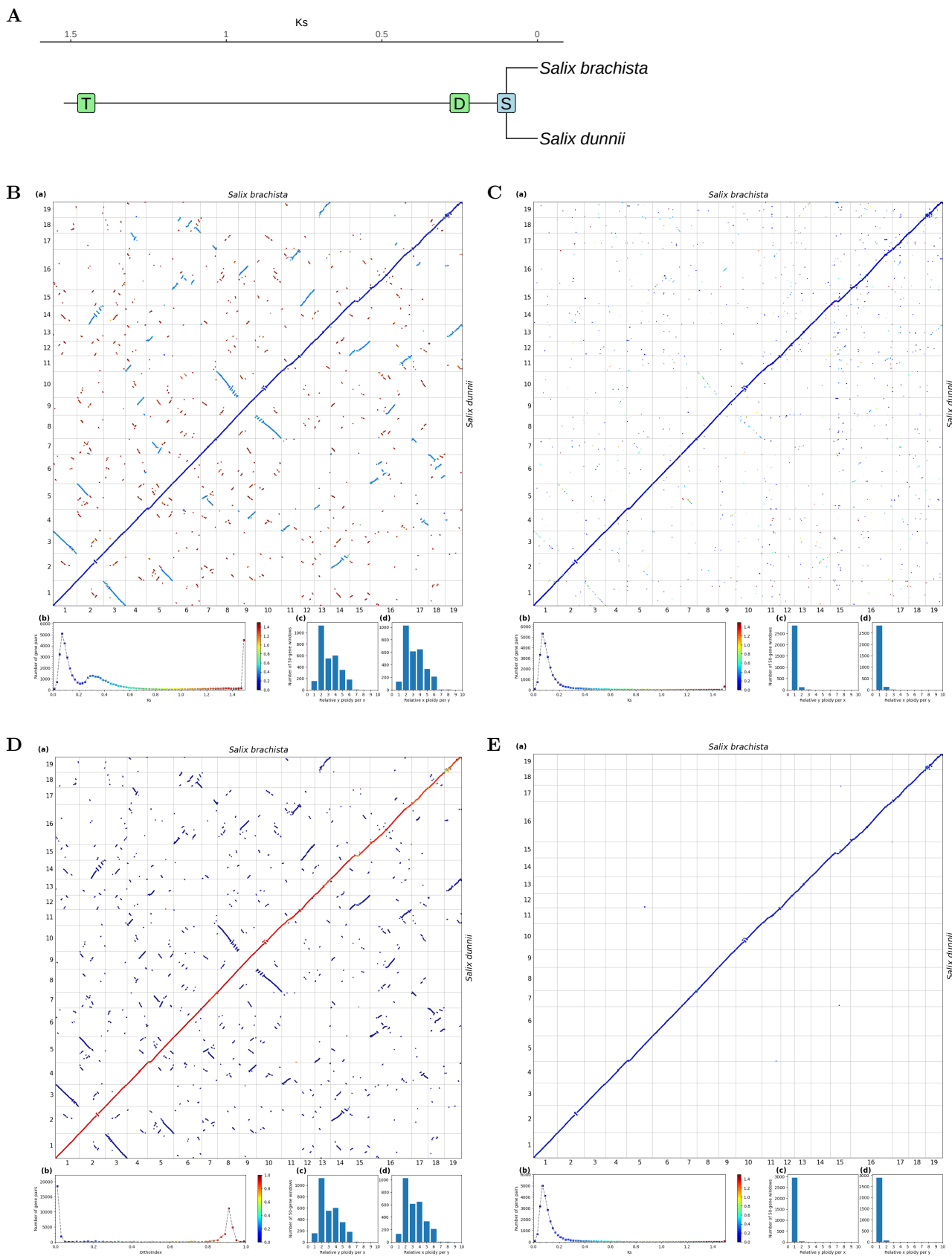


Fig. S 76. Orthology Index in genome evolution of species *Salix dunnii* and *Salix brachista*. Refer to **Fig.1** for detailed descriptions.

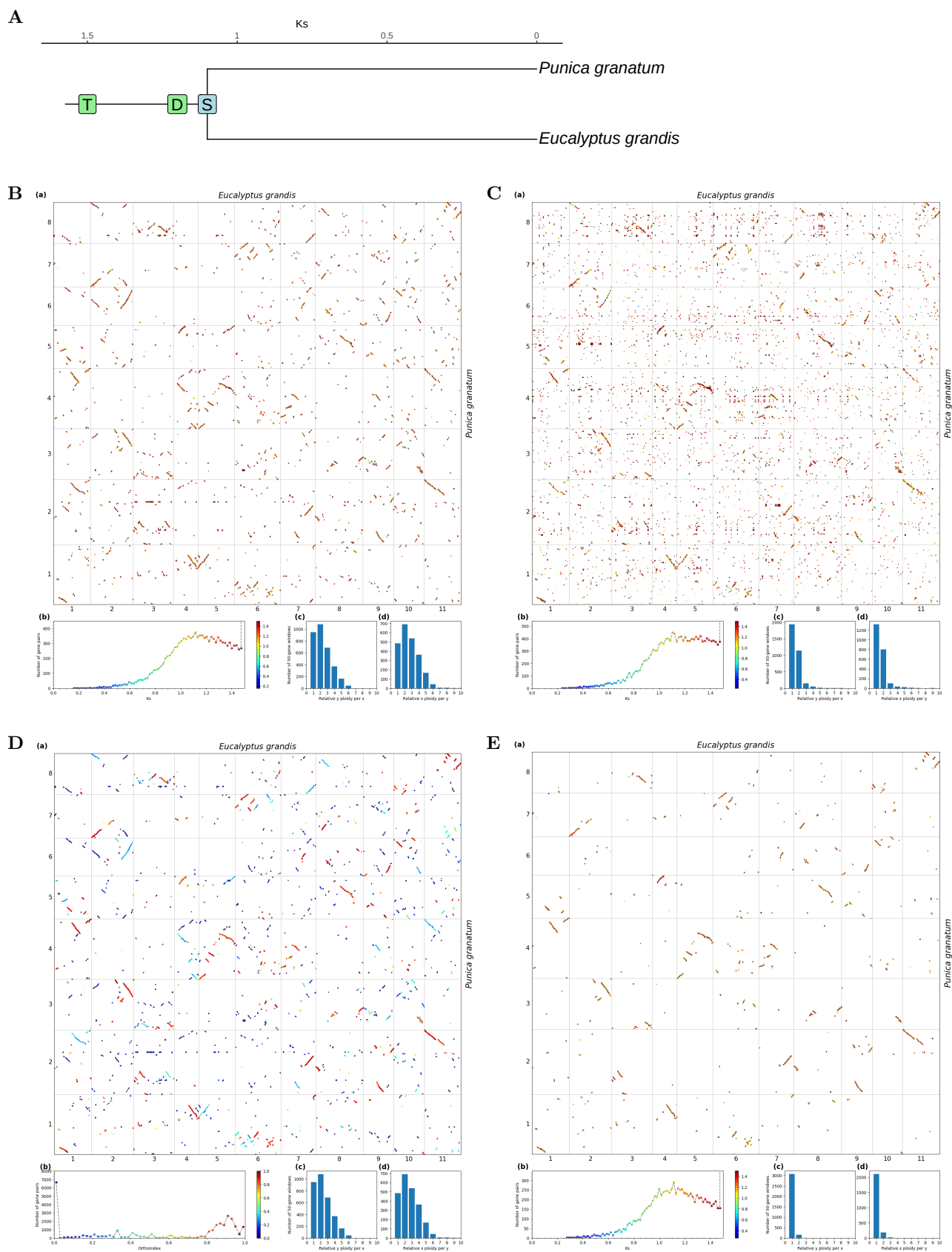


Fig. S 77. Orthology Index in genome evolution of species *Eucalyptus grandis* and *Punica granatum*. Refer to **Fig.1** for detailed descriptions.

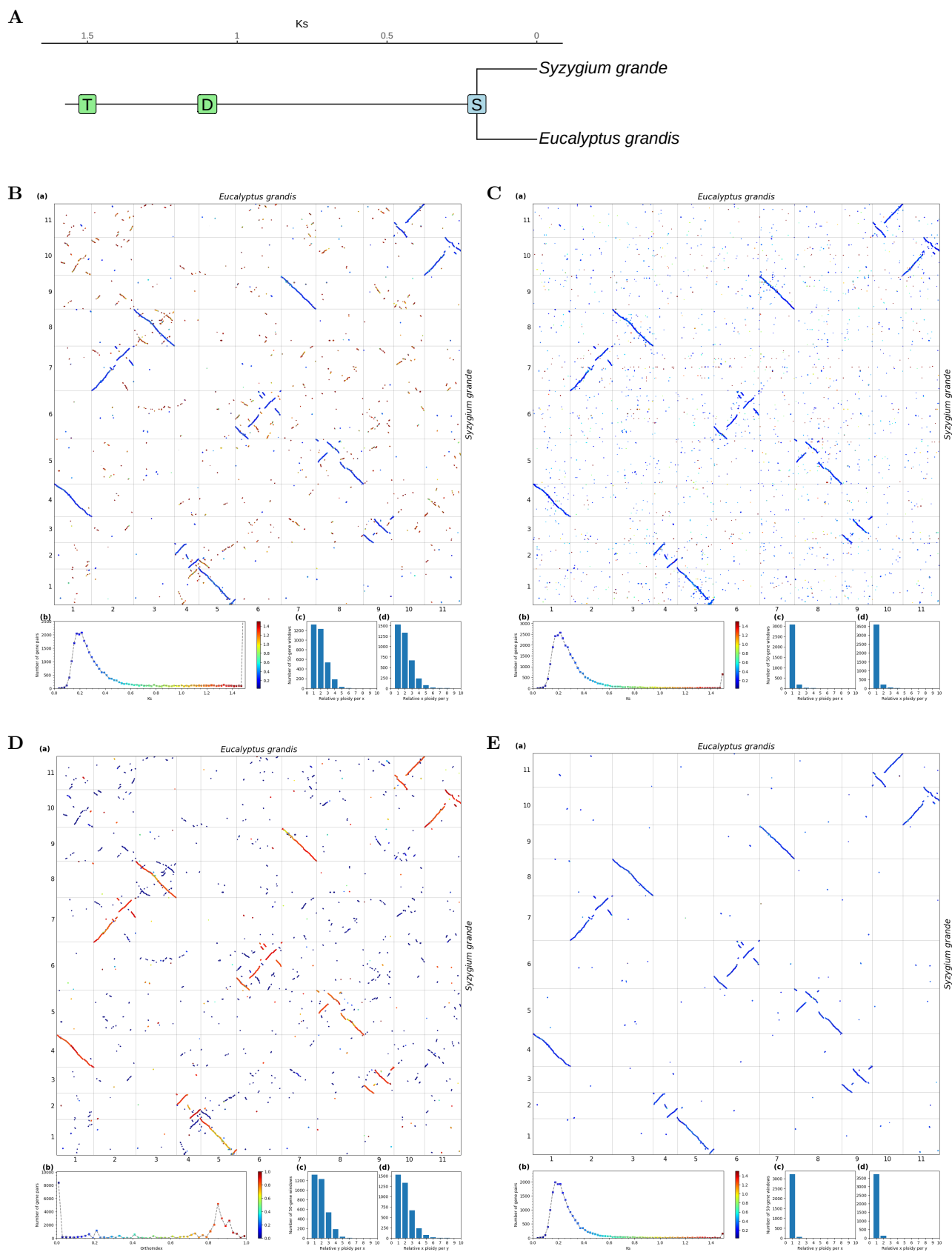


Fig. S 78. Orthology Index in genome evolution of species *Eucalyptus grandis* and *Syzygium grande*. Refer to **Fig.1** for detailed descriptions.

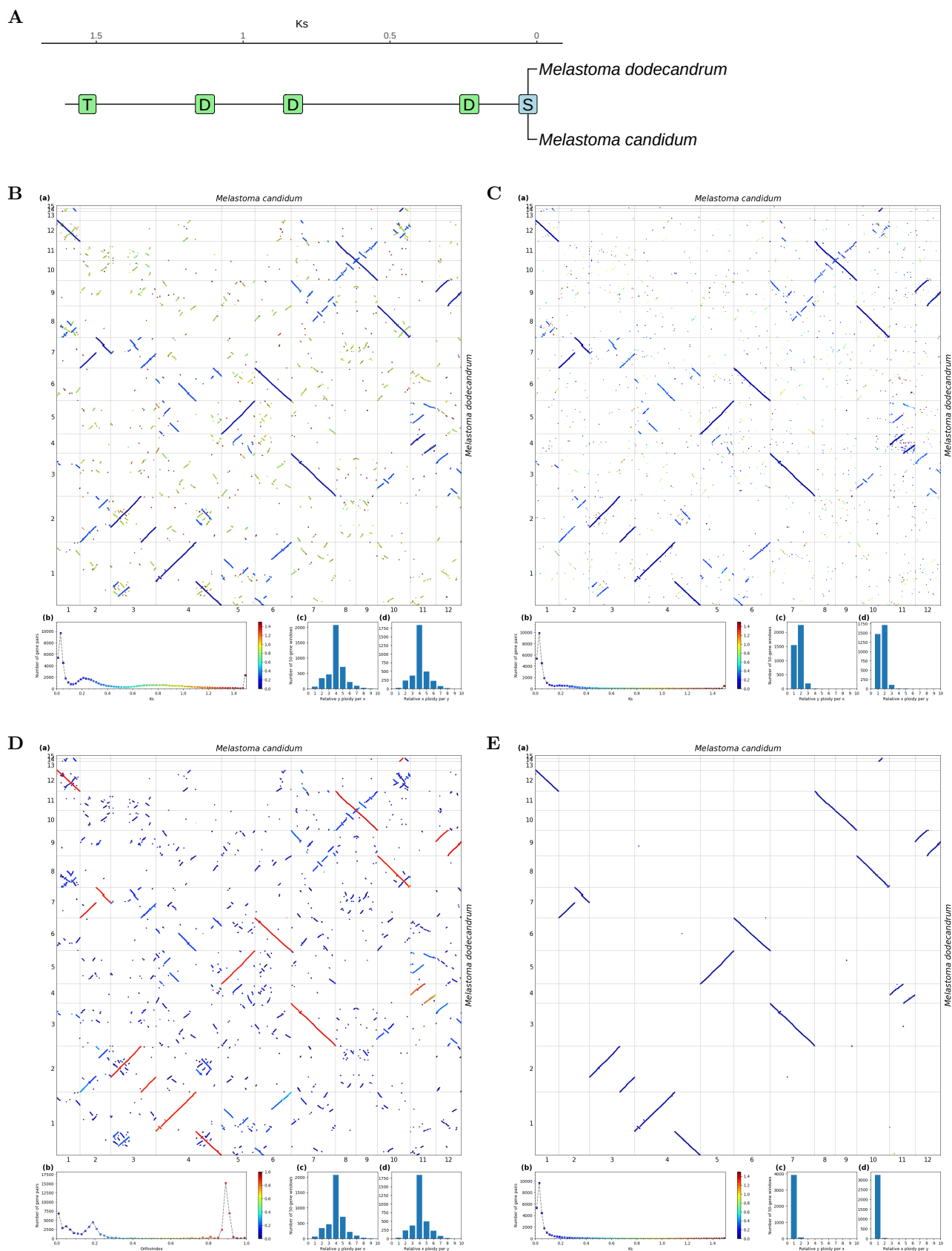


Fig. S 79. Orthology Index in genome evolution of species *Melastoma candidum* and *Melastoma dodecandrum*. Refer to **Fig.1** for detailed descriptions.

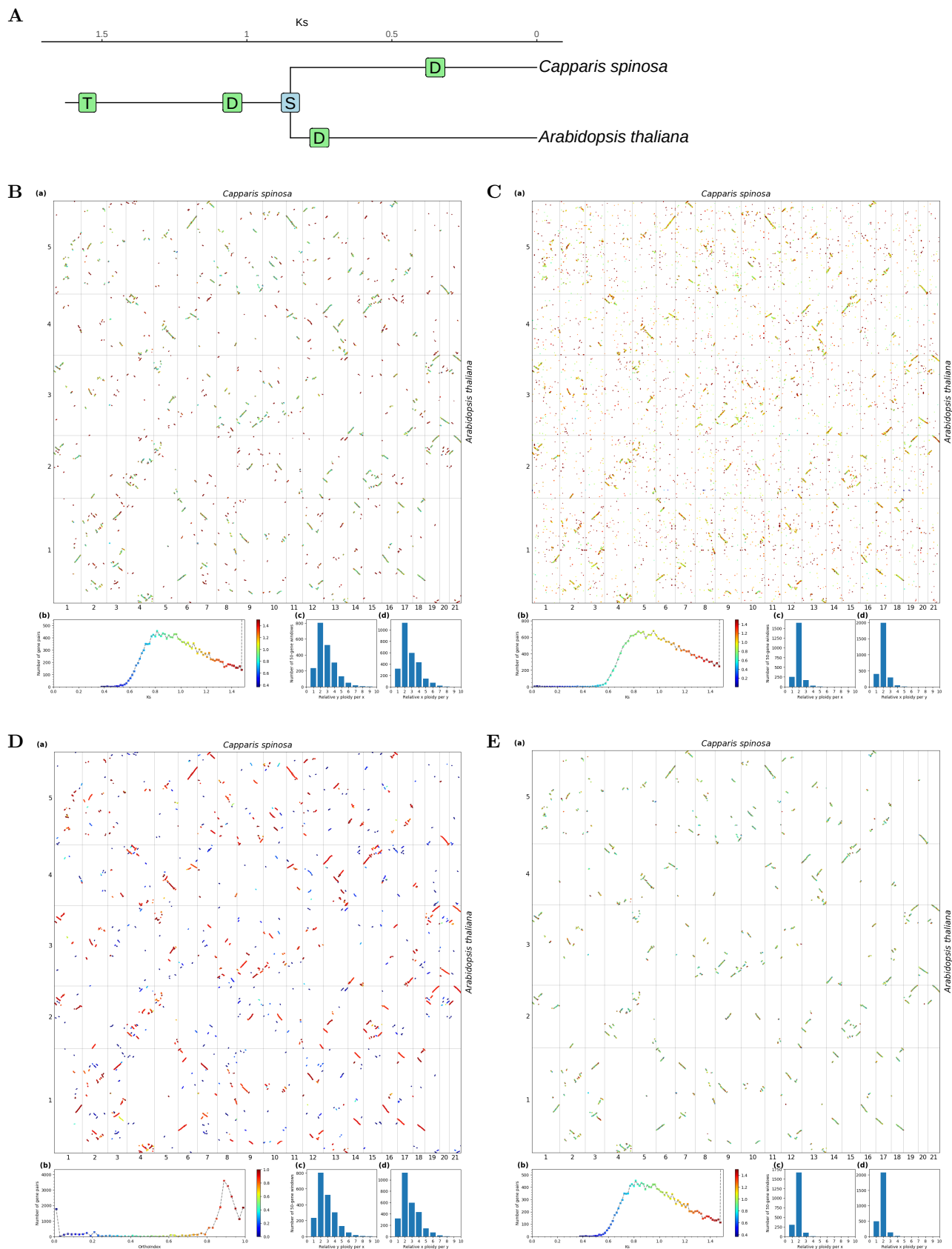


Fig. S 80. Orthology Index in genome evolution of species *Arabidopsis thaliana* and *Capparis spinosa*. Refer to **Fig.1** for detailed descriptions.

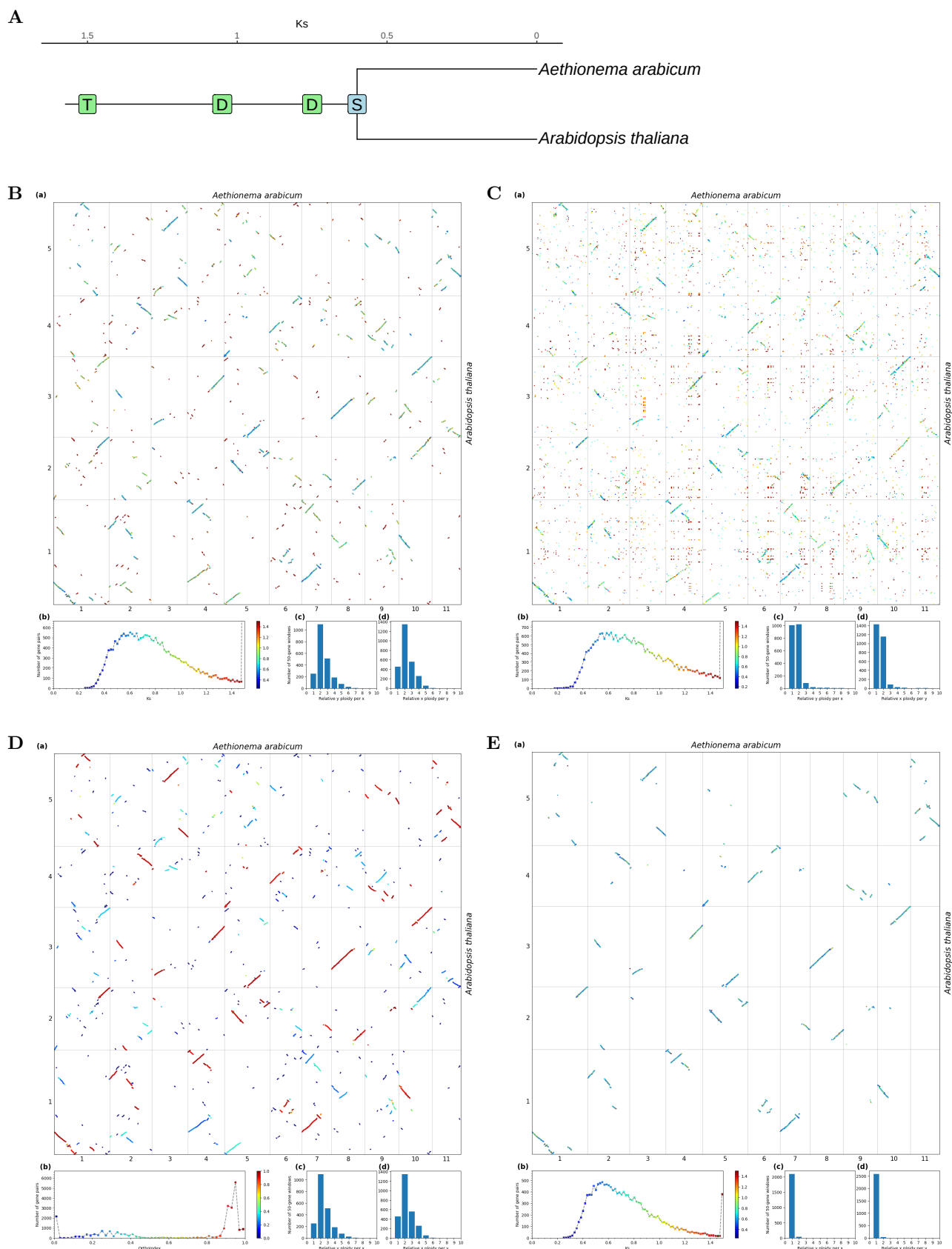


Fig. S 81. Orthology Index in genome evolution of species *Arabidopsis thaliana* and *Aethionema arabicum*. Refer to **Fig.1** for detailed descriptions.

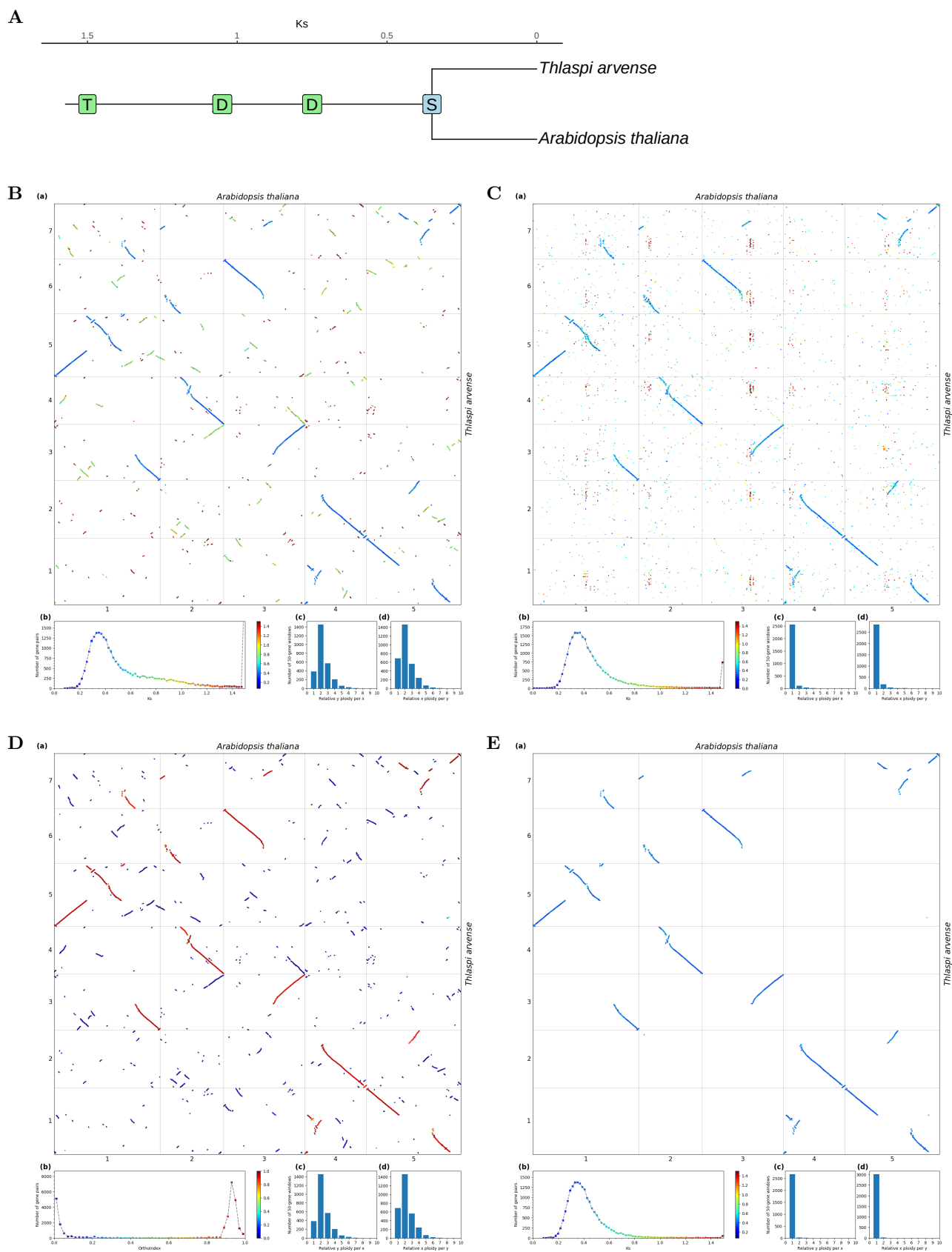


Fig. S 82. Orthology Index in genome evolution of species *Arabidopsis thaliana* and *Thlaspi arvense*. Refer to **Fig.1** for detailed descriptions.

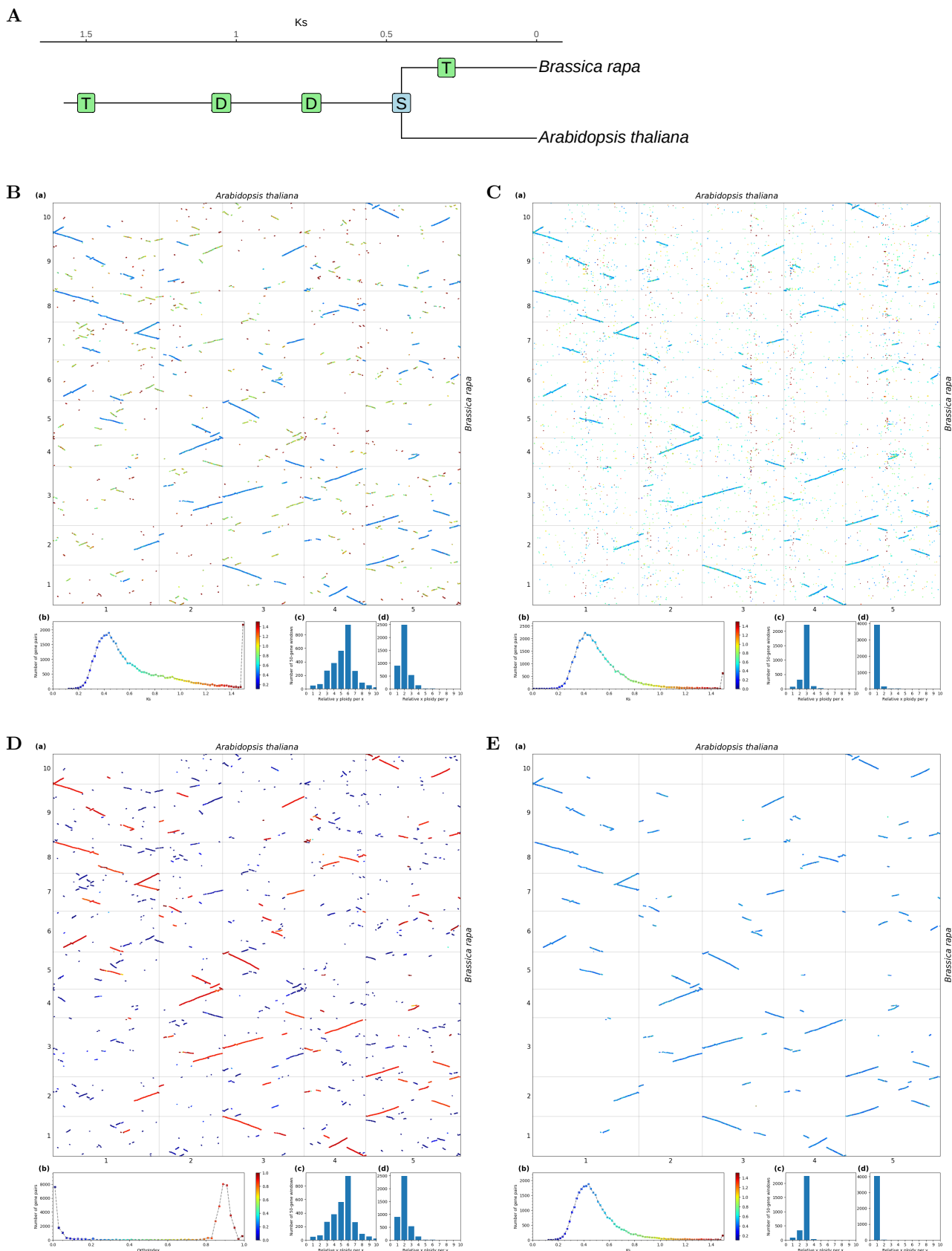


Fig. S 83. Orthology Index in genome evolution of species *Arabidopsis thaliana* and *Brassica rapa*. Refer to **Fig.1** for detailed descriptions.

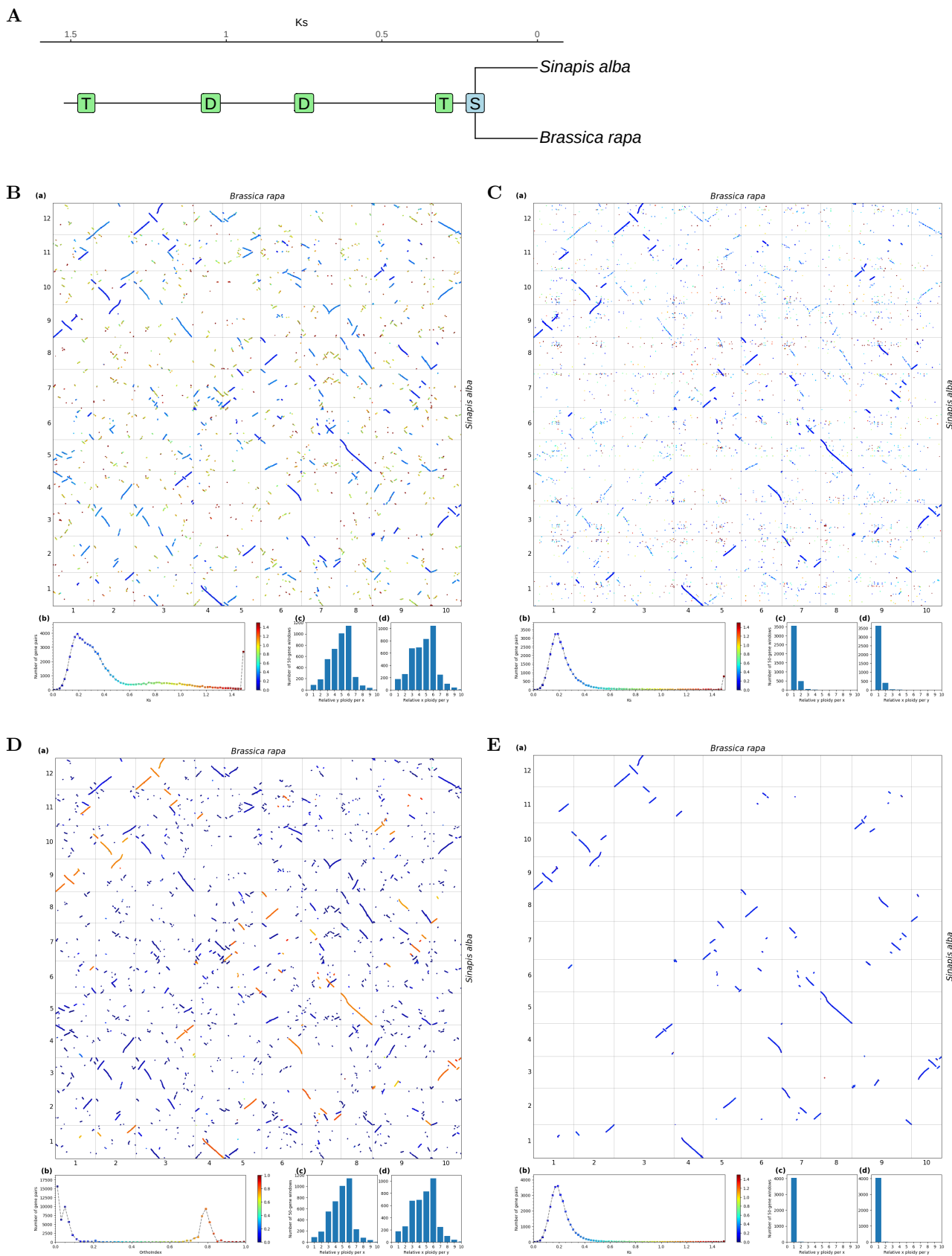


Fig. S 84. Orthology Index in genome evolution of species *Brassica rapa* and *Sinapis alba*. Refer to **Fig.1** for detailed descriptions.

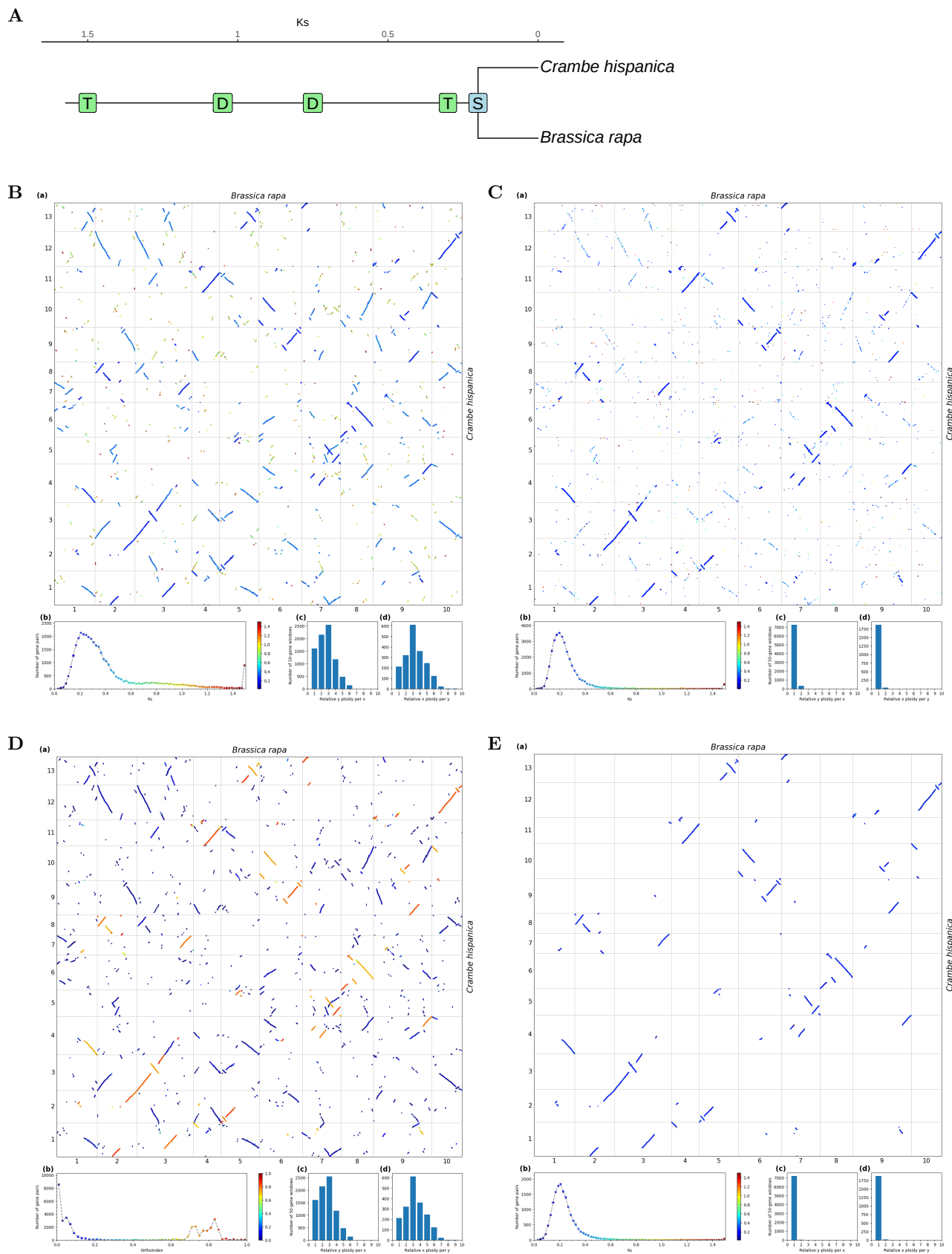


Fig. S 85. Orthology Index in genome evolution of species *Brassica rapa* and *Crambe hispanica*. Refer to Fig.1 for detailed descriptions.

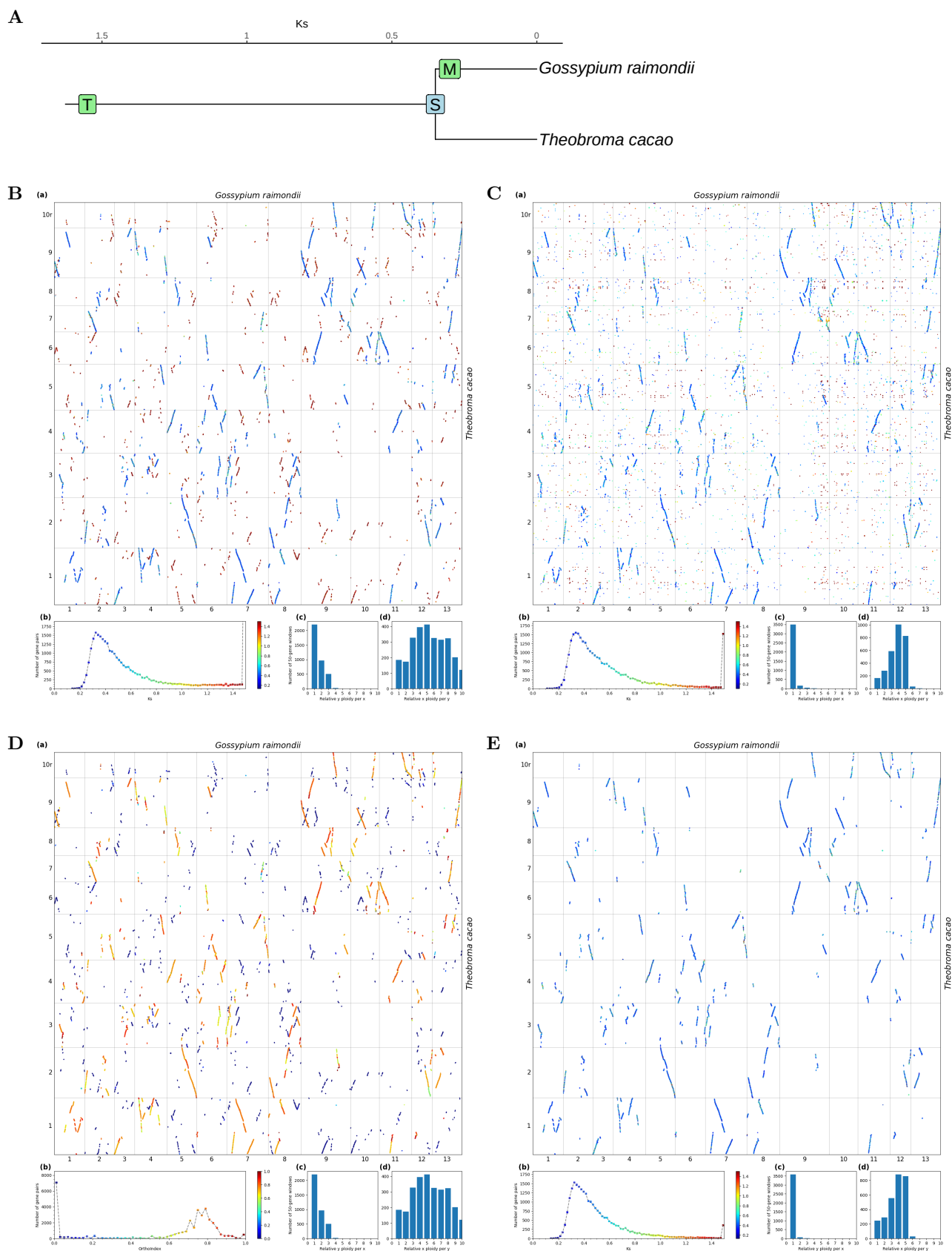


Fig. S 86. Orthology Index in genome evolution of species *Theobroma cacao* and *Gossypium raimondii*. Refer to **Fig.1** for detailed descriptions.

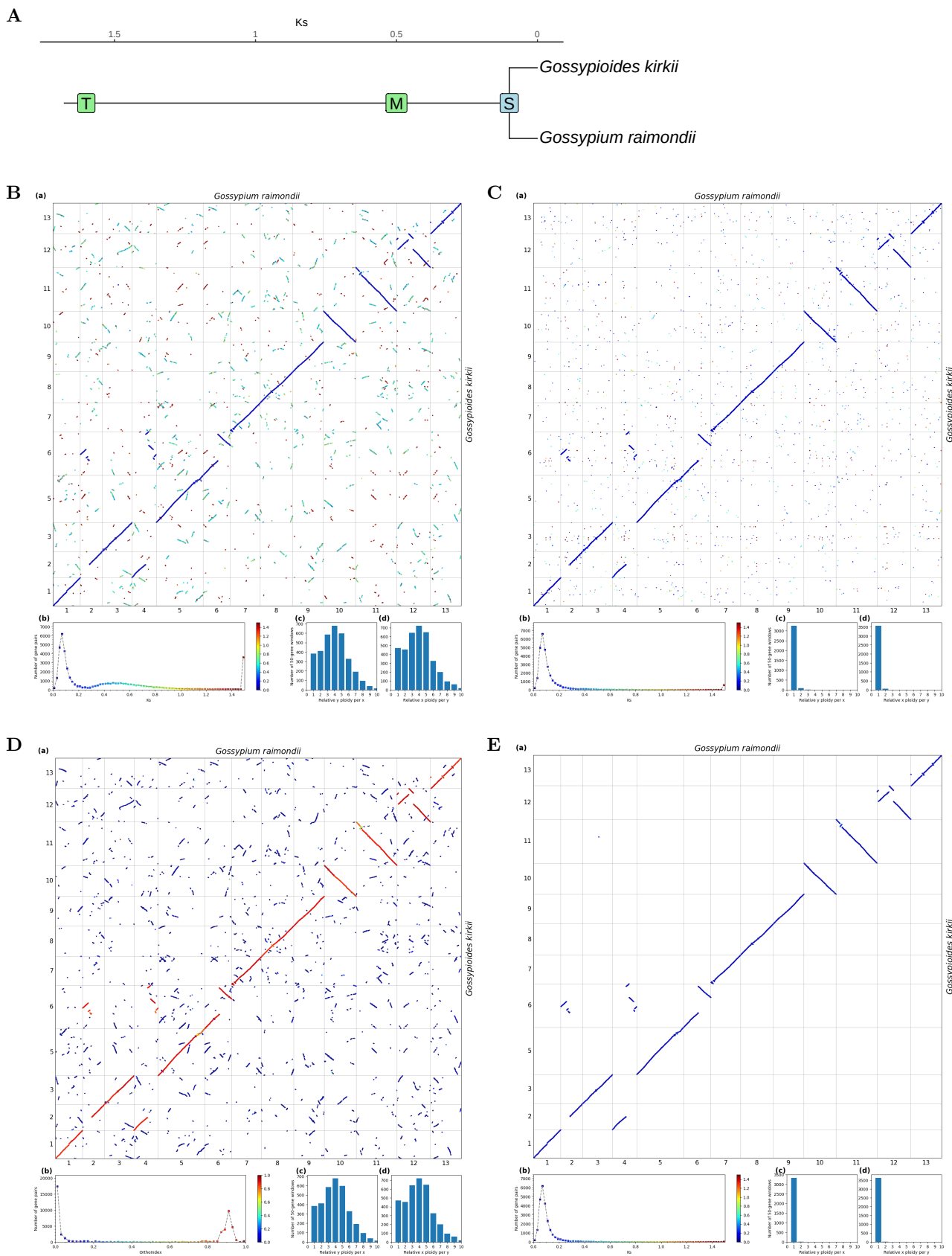


Fig. S 87. Orthology Index in genome evolution of species *Gossypium raimondii* and *Gossypoides kirkii*. Refer to **Fig.1** for detailed descriptions.

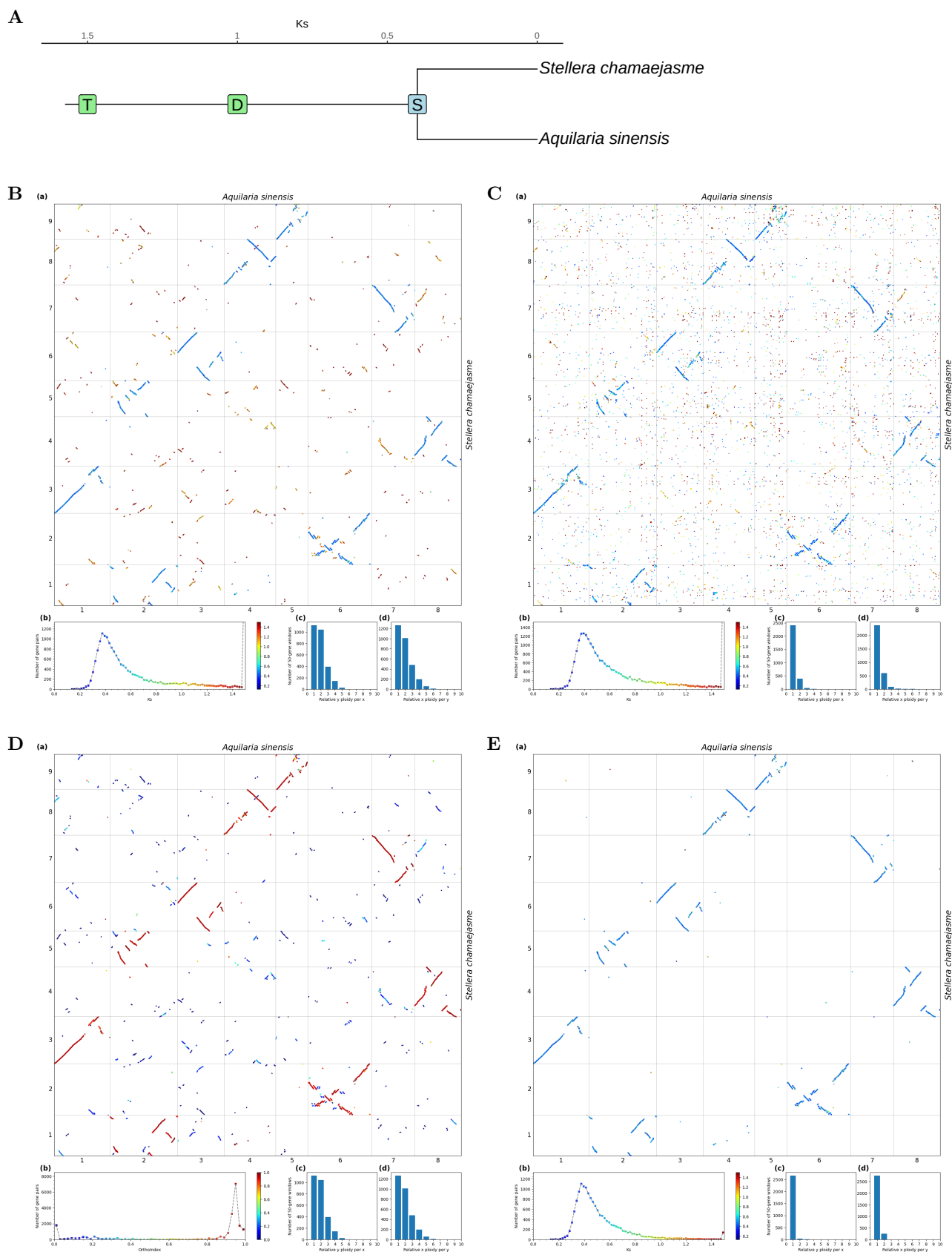


Fig. S 88. Orthology Index in genome evolution of species *Aquilaria sinensis* and *Stellera chamaejasme*. Refer to **Fig.1** for detailed descriptions.

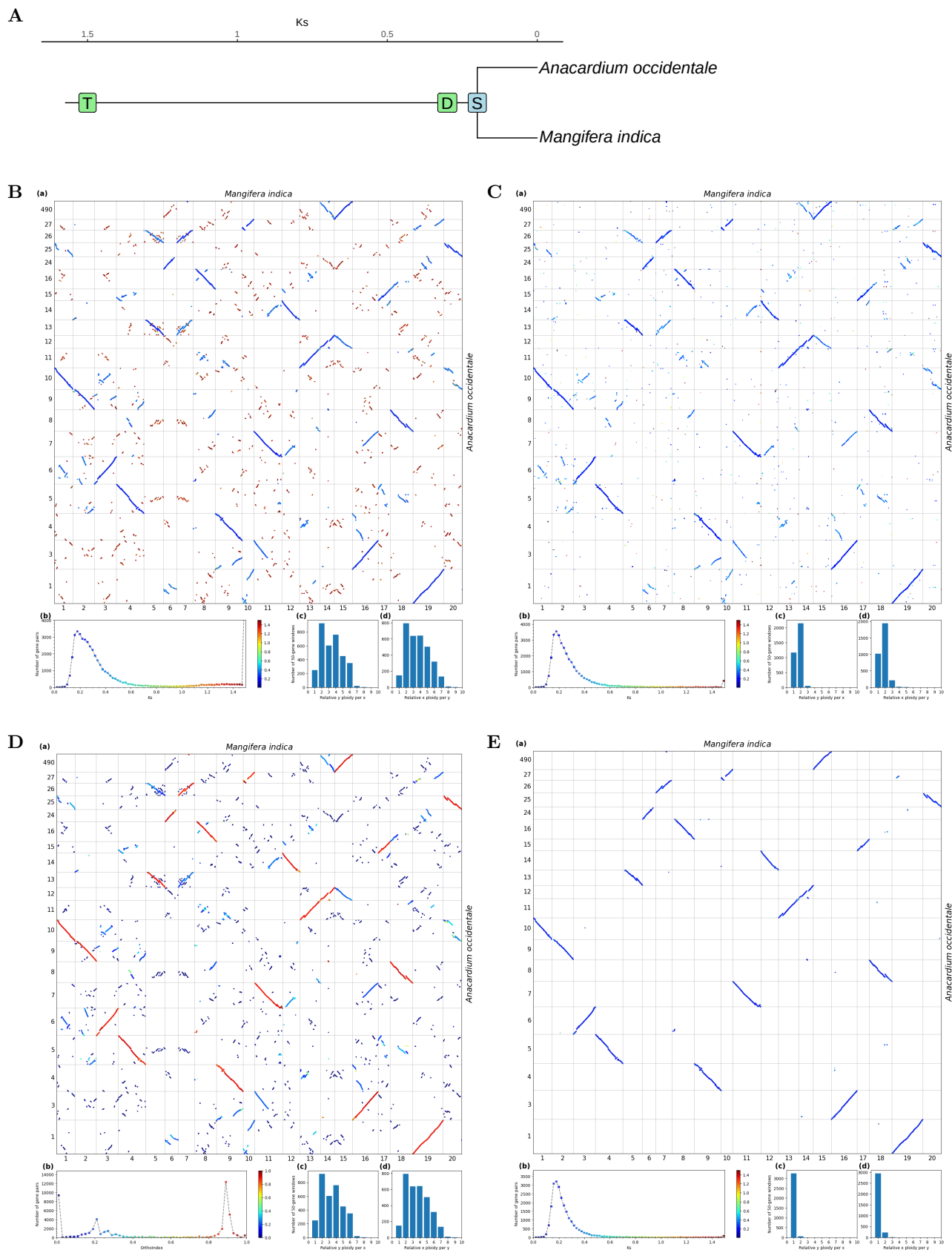


Fig. S 89. Orthology Index in genome evolution of species *Mangifera indica* and *Anacardium occidentale*. Refer to **Fig.1** for detailed descriptions.

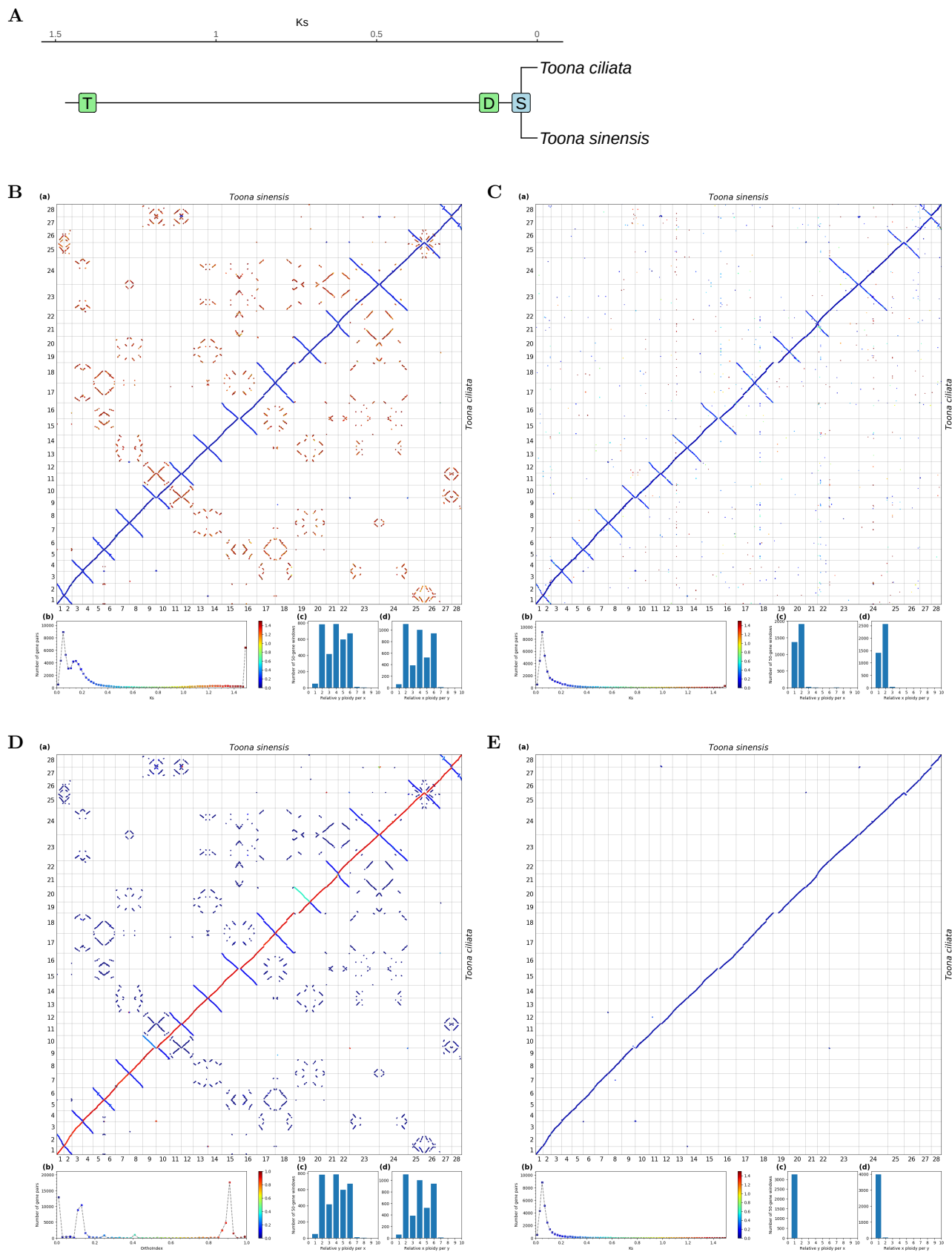


Fig. S 90. Orthology Index in genome evolution of species *Toona sinensis* and *Toona ciliata*. Refer to **Fig.1** for detailed descriptions.

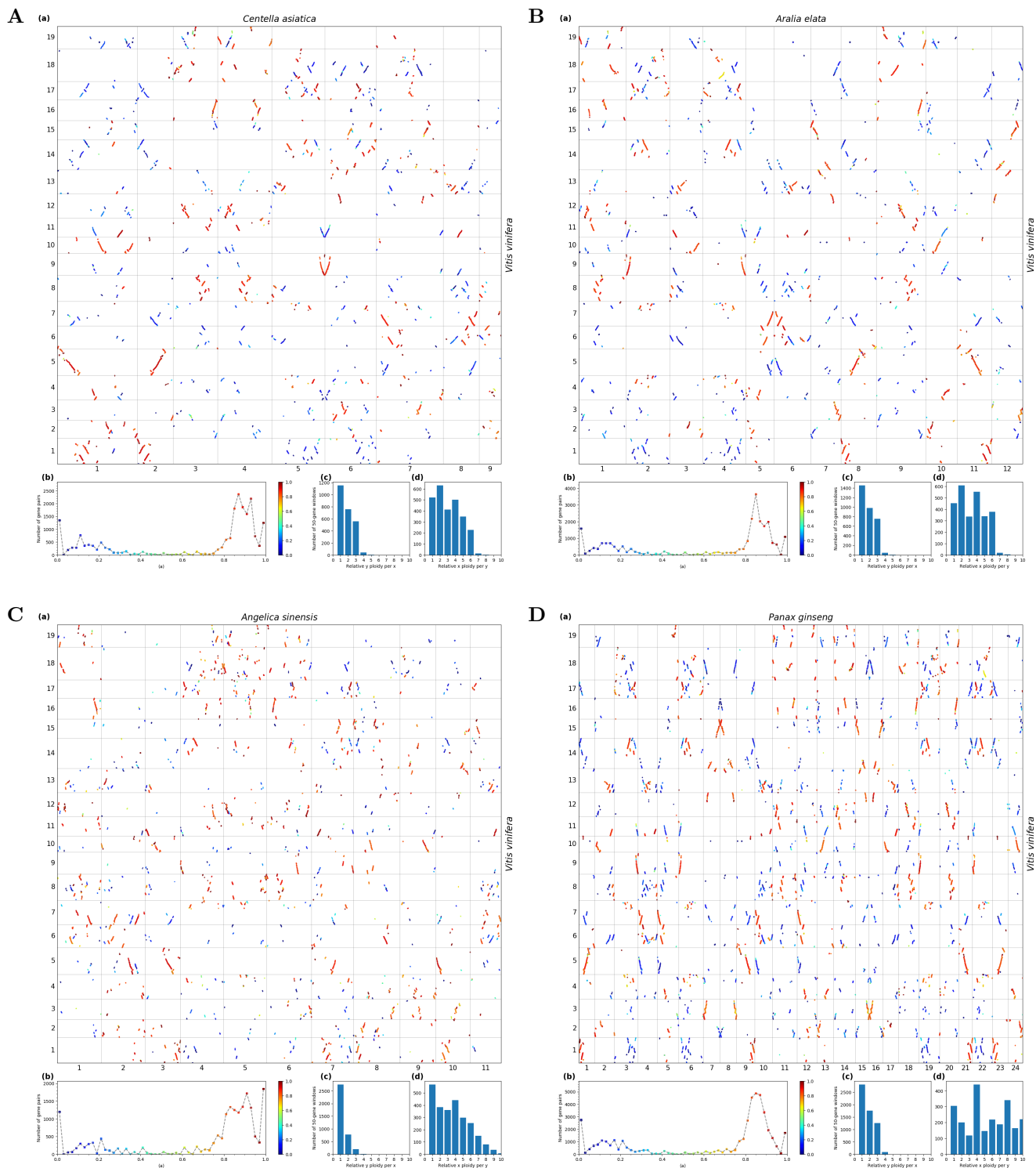


Fig. S 91. *Orthology Index*-colored dot plots showing orthologous syntenic relationships of *Centella asiatica*-*Vitis vinifera* (2:1 orthologous syntenic depth ratio), *Aralia elata*-*Vitis vinifera* (2:1), *Angelica sinensis*-*Vitis vinifera* (4:1), and *Panax ginseng*-*Vitis vinifera* (4:1).

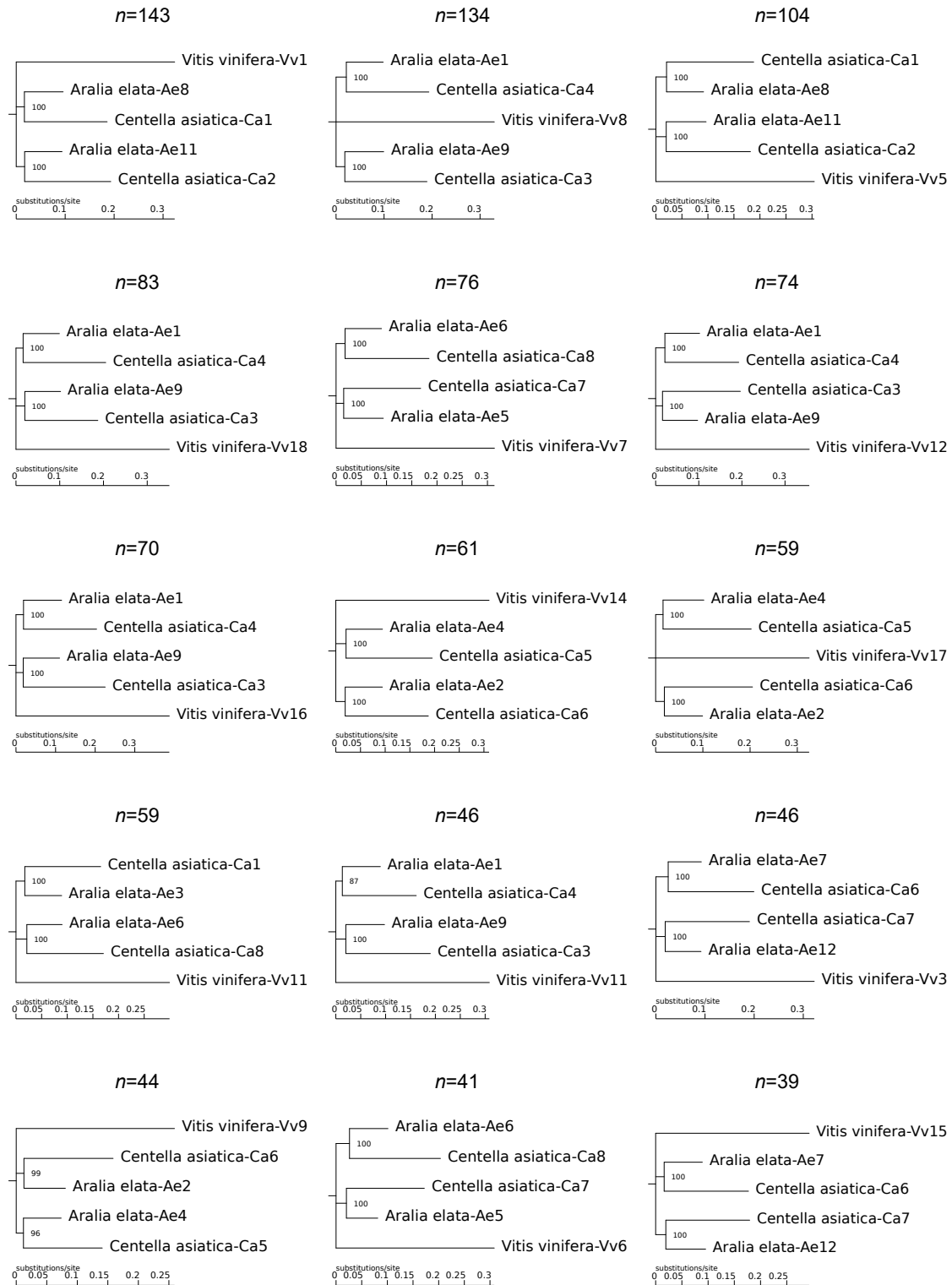


Fig. S 92. Macro-synteny phylogenies inferred based on concatenated 1:2:2 (*Vitis vinifera* : *Aralia elata* : *Centella asiatica*) orthologous syntenic genes. The leaf labels on the trees are chromosome numbers. n, number of orthologous syntenic genes. Numbers at nodes represent the bootstrap values (percentage).

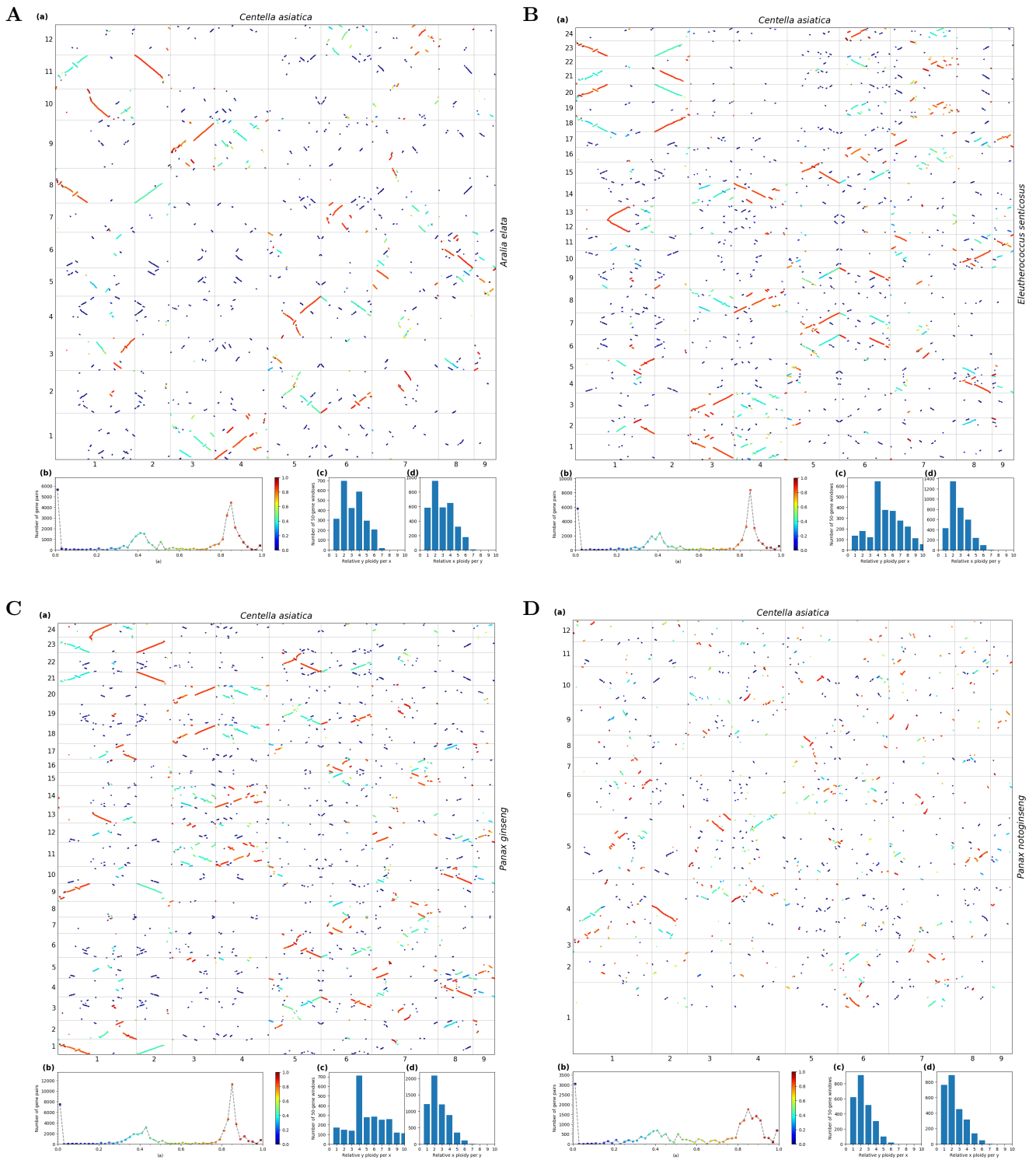


Fig. S 93. *Orthology Index*-colored dot plots showing orthologous syntenic relationships between *Centella asiatica* and Araliaceae (*Centella asiatica* : *Aralia elata* = 1:1, *Centella asiatica* : *Eleutherococcus senticosus* = 1:2, *Centella asiatica* : *Panax ginseng*=1:2, *Centella asiatica* : *Panax notoginseng*=1:1).

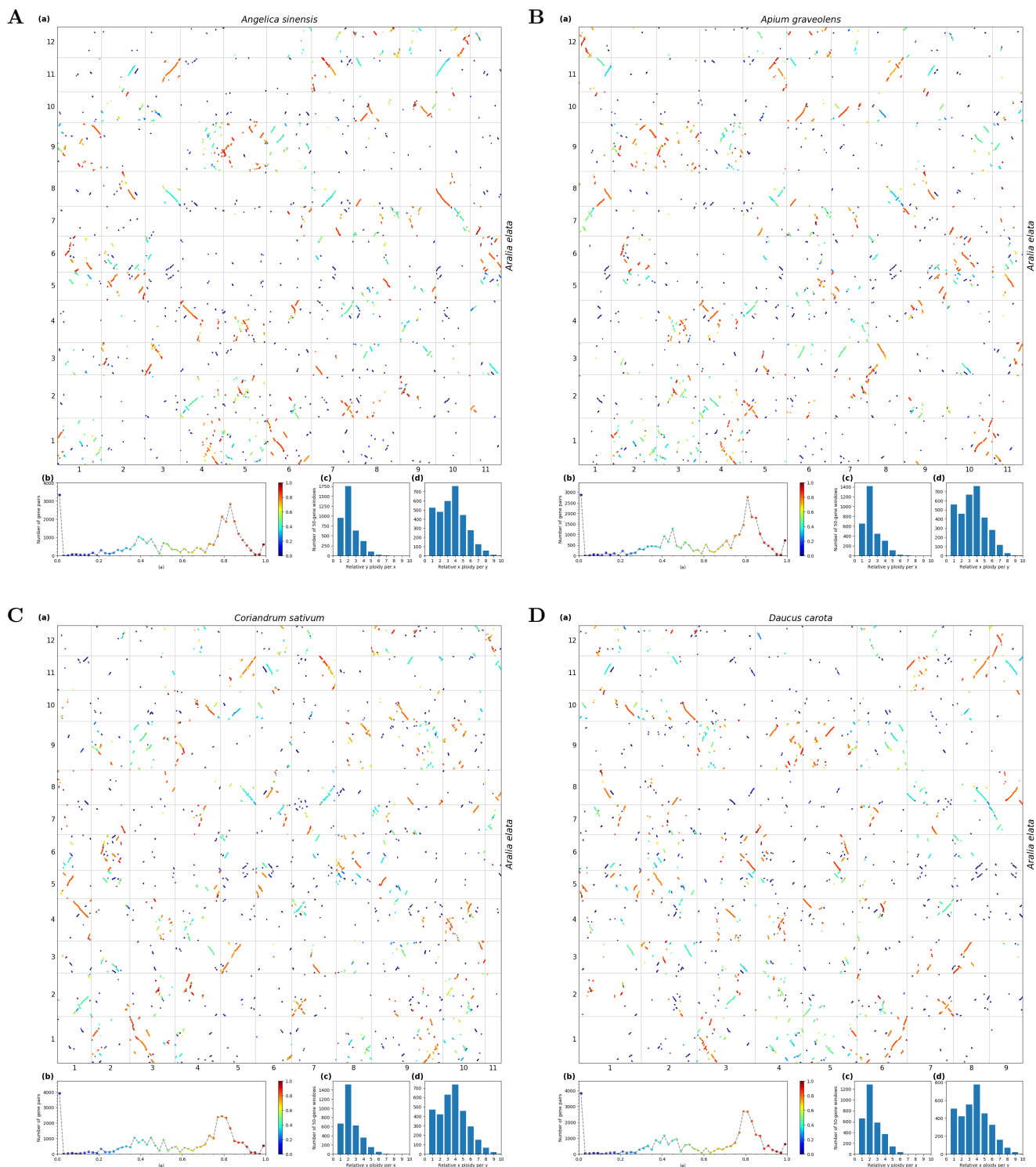


Fig. S 94. Orthology Index-colored dot plots showing orthologous syntenic relationships between *Aralia elata* and Apioideae (all 1:2).

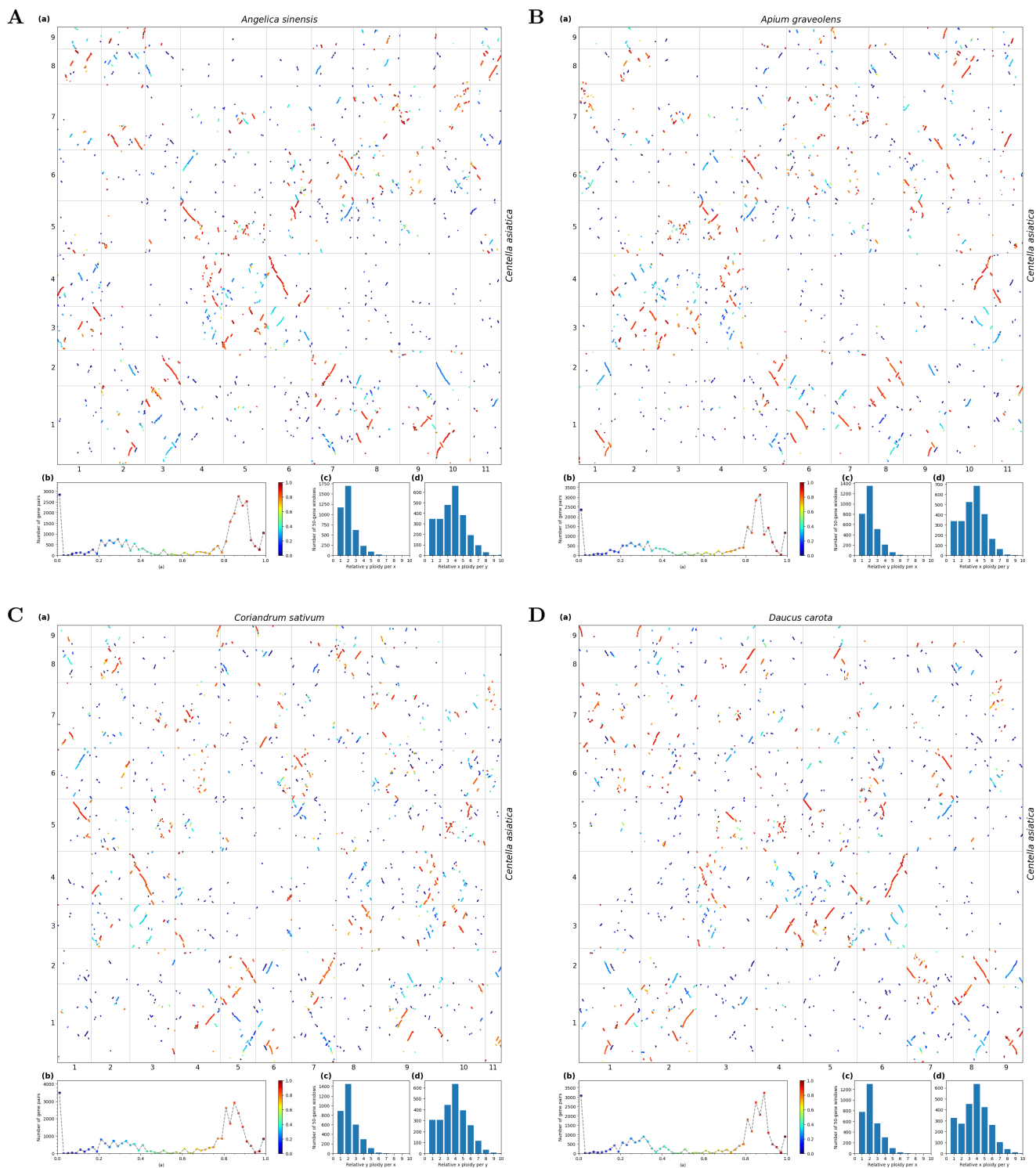


Fig. S 95. Orthology Index-colored dot plots showing orthologous syntenic relationships between *Centella asiatica* and Apioideae (all 1:2).

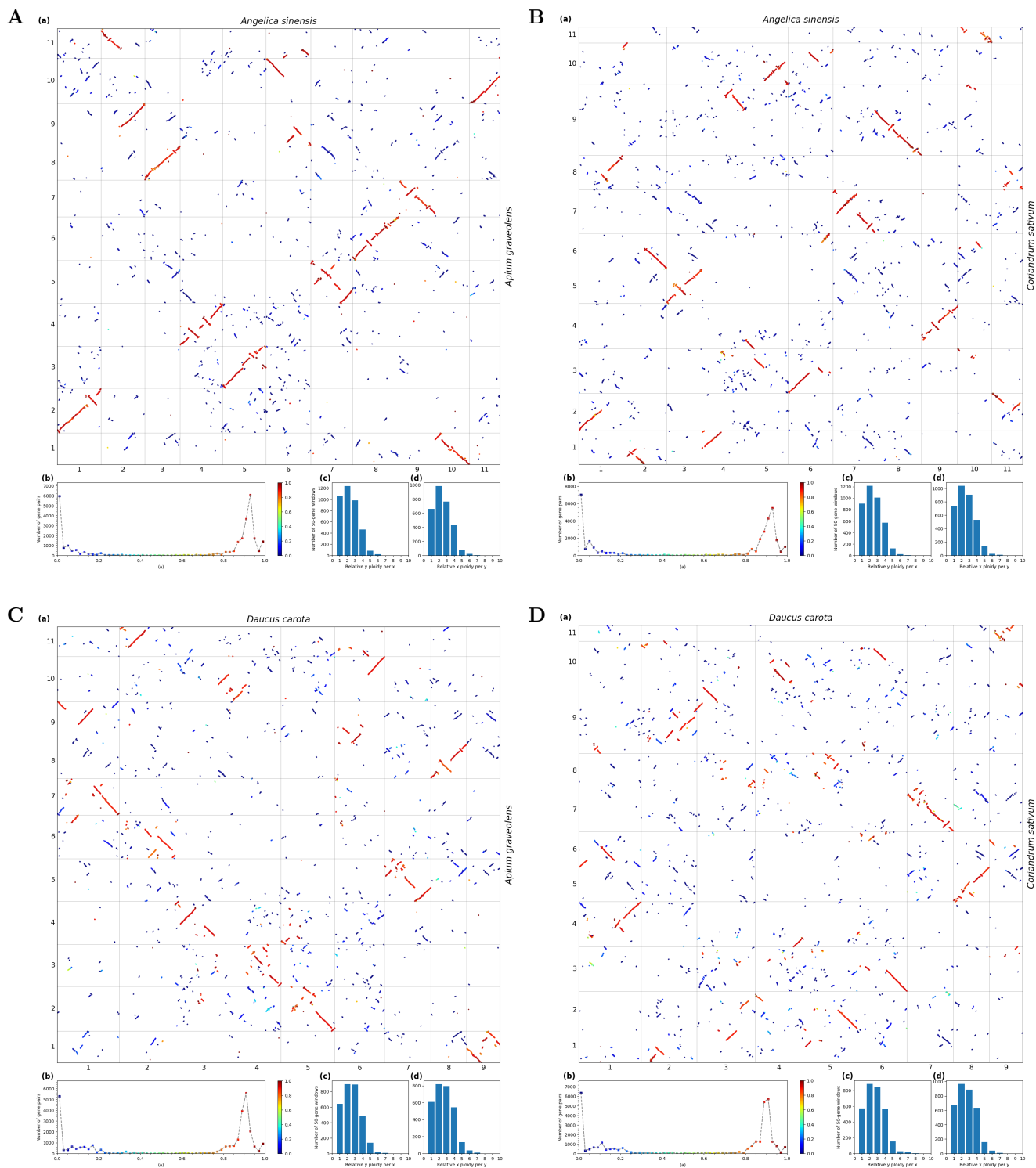


Fig. S 96. Orthology Index-colored dot plots showing orthologous syntenic relationships within Apioideae (all 1:1).

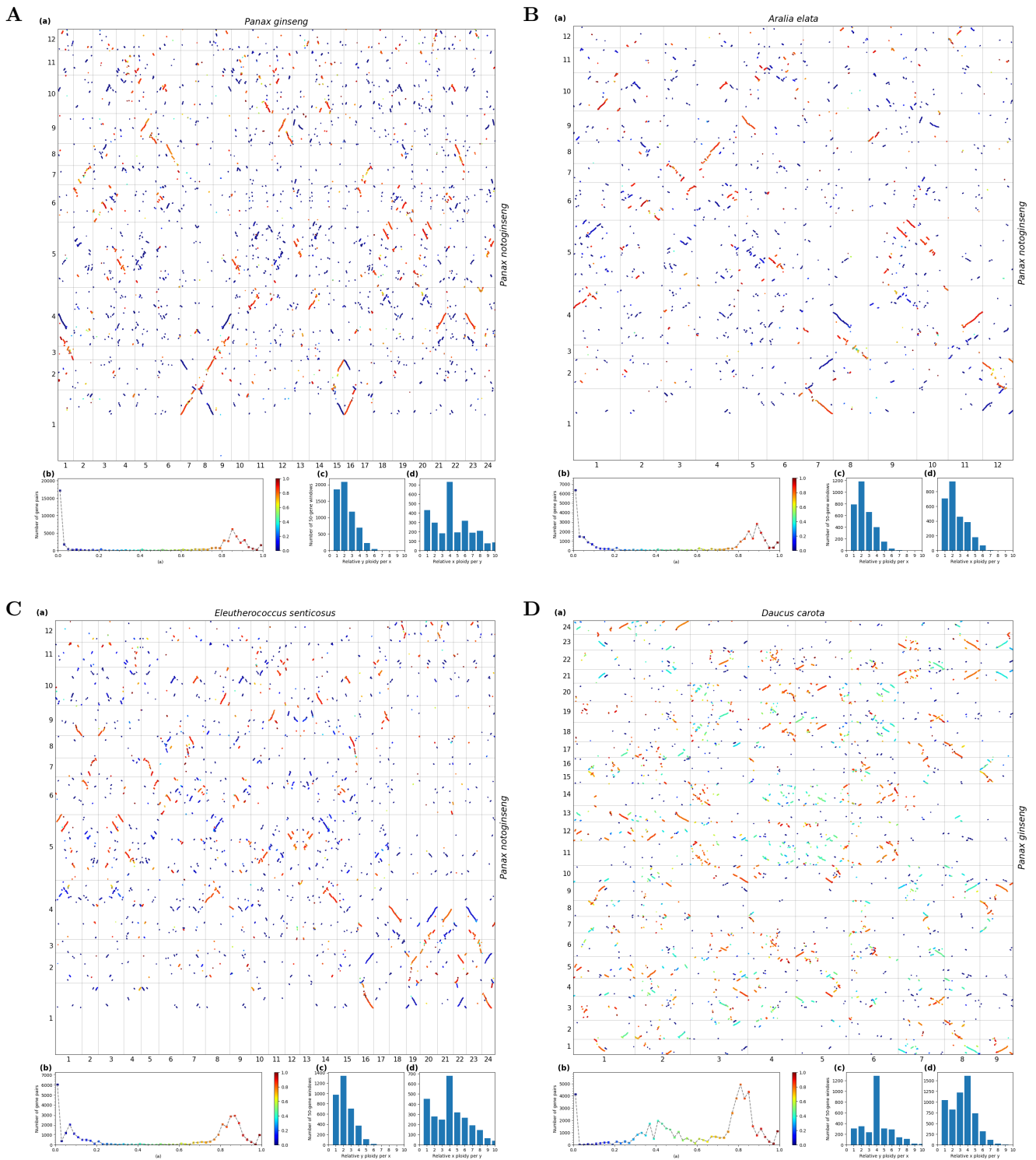


Fig. S 97. *Orthology Index*-colored dot plots showing orthologous syntenic relationships within Araliaceae (*Panax ginseng* : *Panax notoginseng* = 2:1, *Aralia elata* : *Panax notoginseng* = 1:1, *Eleutherococcus senticosus* : *Panax notoginseng* = 2:1). The other orthologous syntenic ratios (*Aralia elata*: *Eleutherococcus senticosus* = 1:2, *Aralia elata*: *Panax ginseng* = 1:2, *Eleutherococcus senticosus*: *Panax ginseng* = 2:2) can be found in Fig. S57-59.

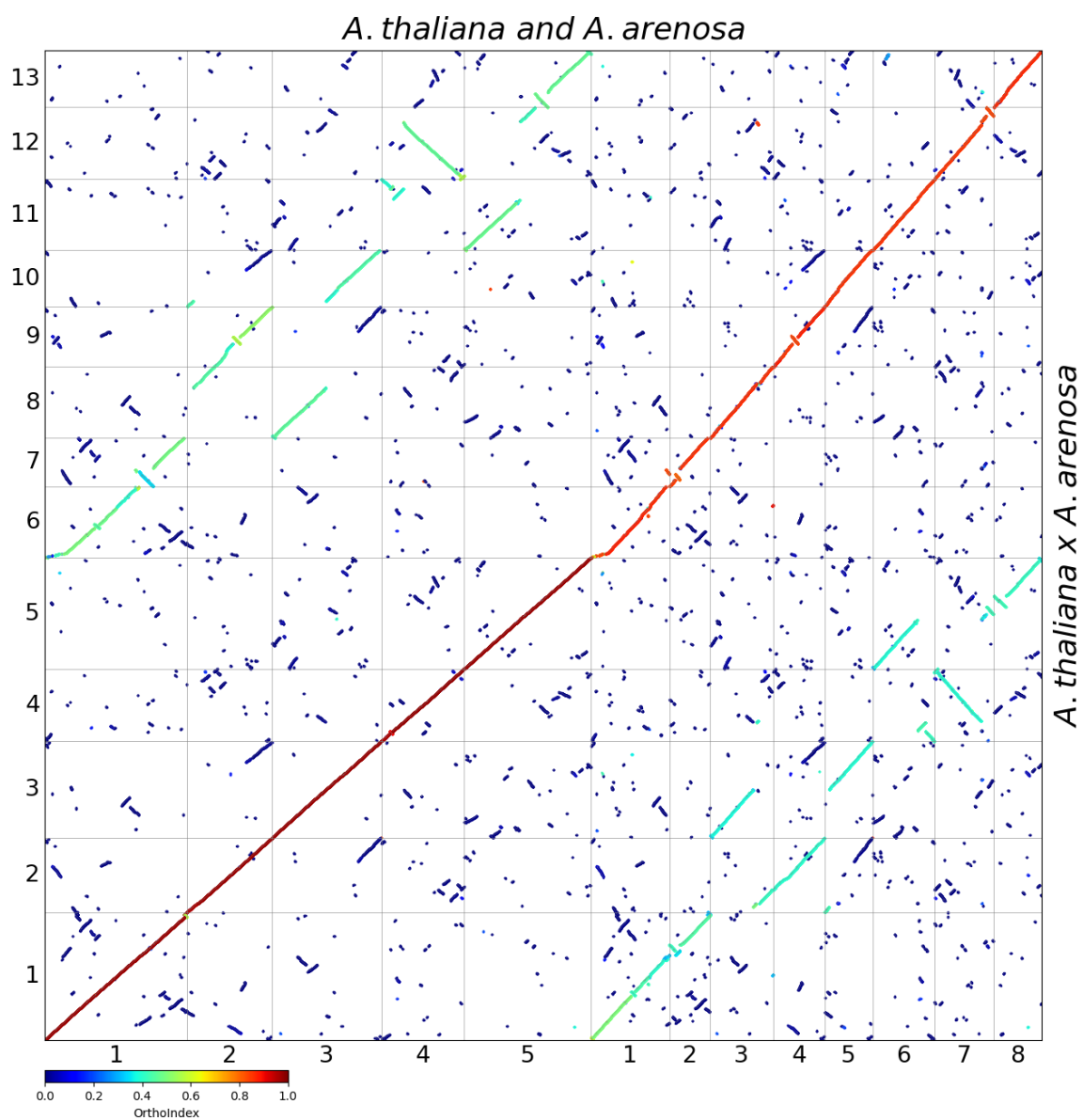


Fig. S 98. *Orthology Index*-colored dot plots showing orthologous syntenic relationships between *Arabidopsis thaliana* x *A.arenosa* and *A. thaliana* + *A. arenosa*.

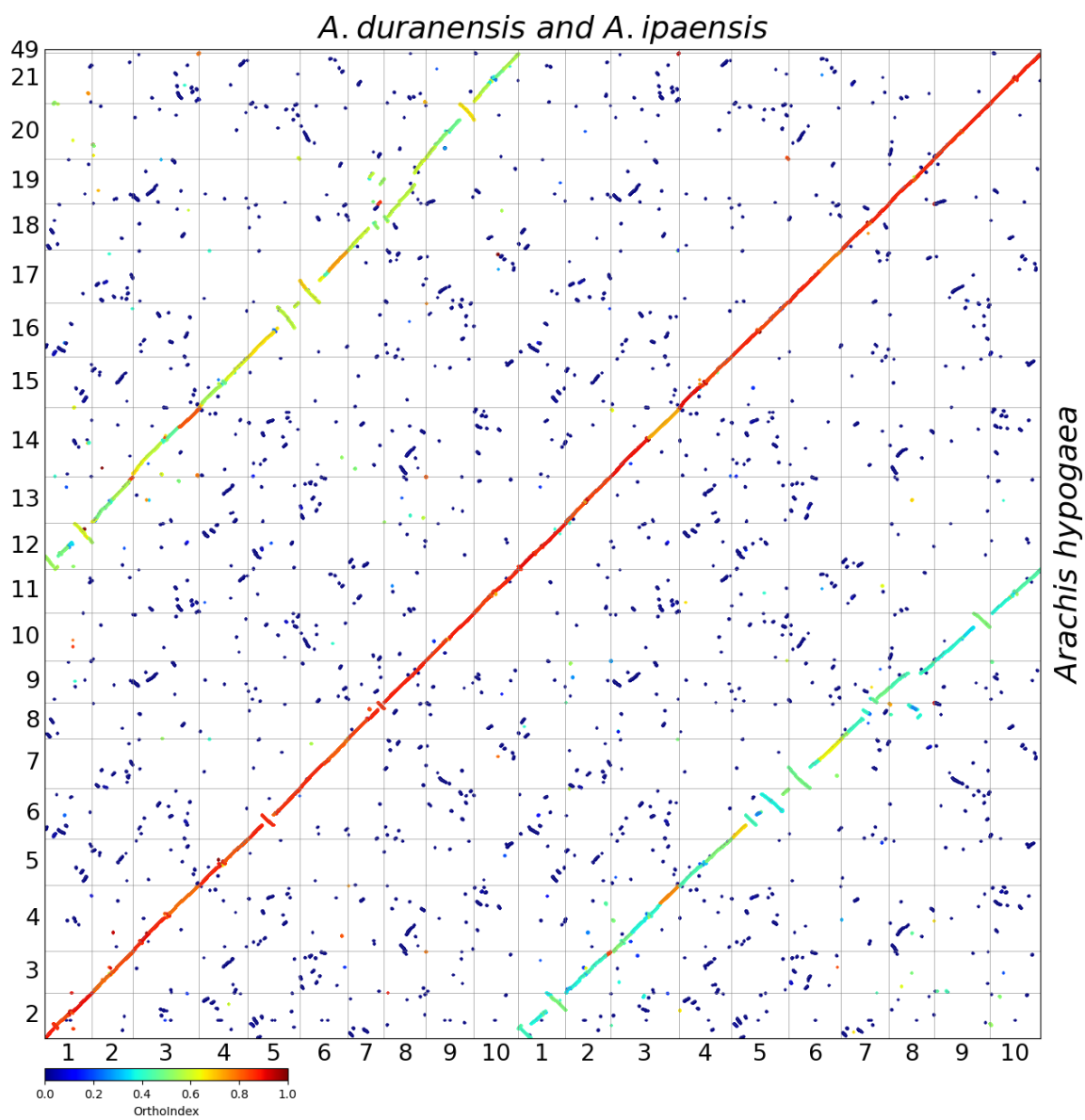


Fig. S 99. *Orthology Index*-colored dot plots showing orthologous syntenic relationships between *Arachis hypogaea* and *A. duranensis* + *A. ipaensis*.

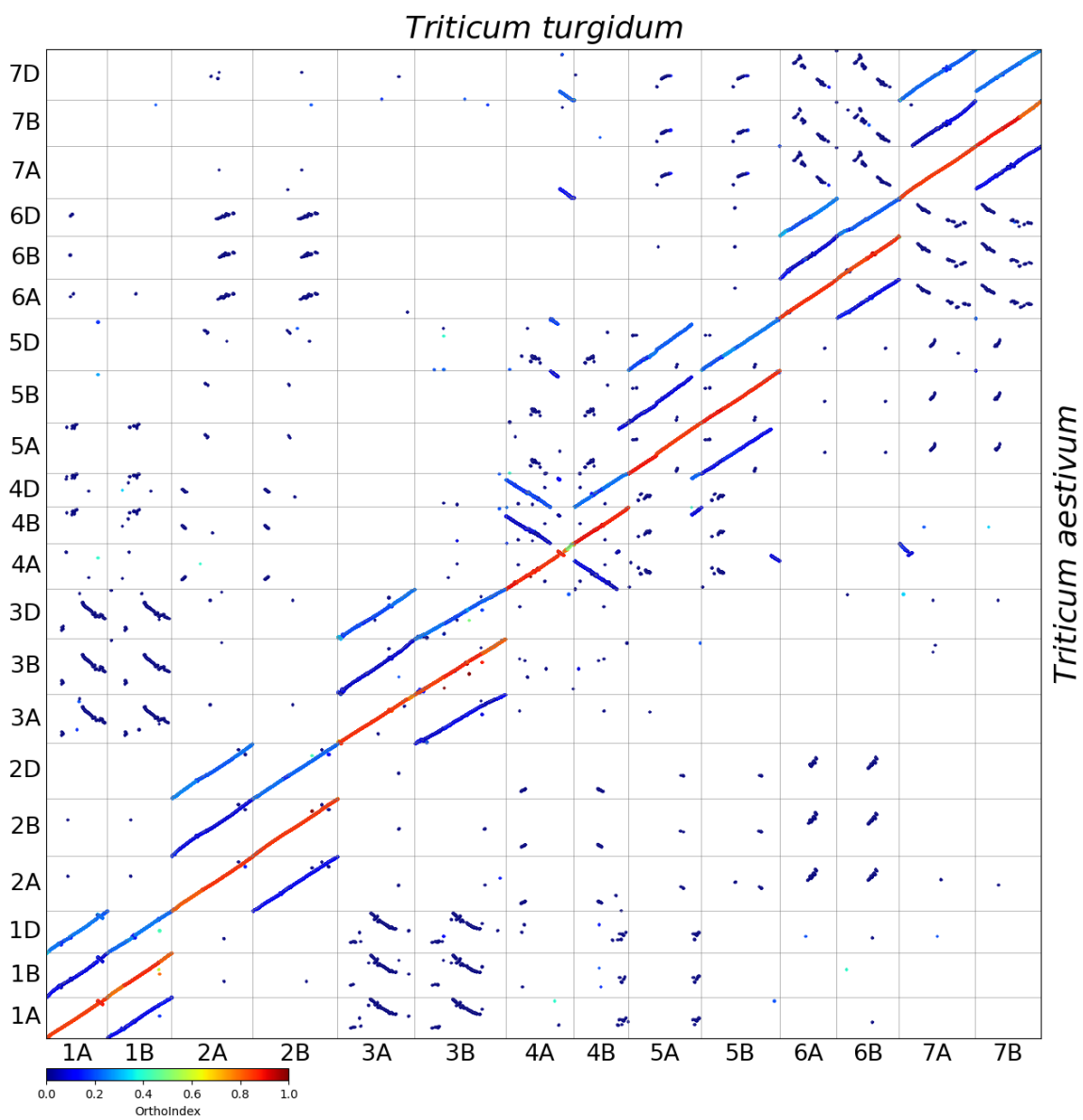


Fig. S 100. *Orthology Index*-colored dot plots showing orthologous syntenic relationships between *Triticum turgidum* and *T. aestivum*.

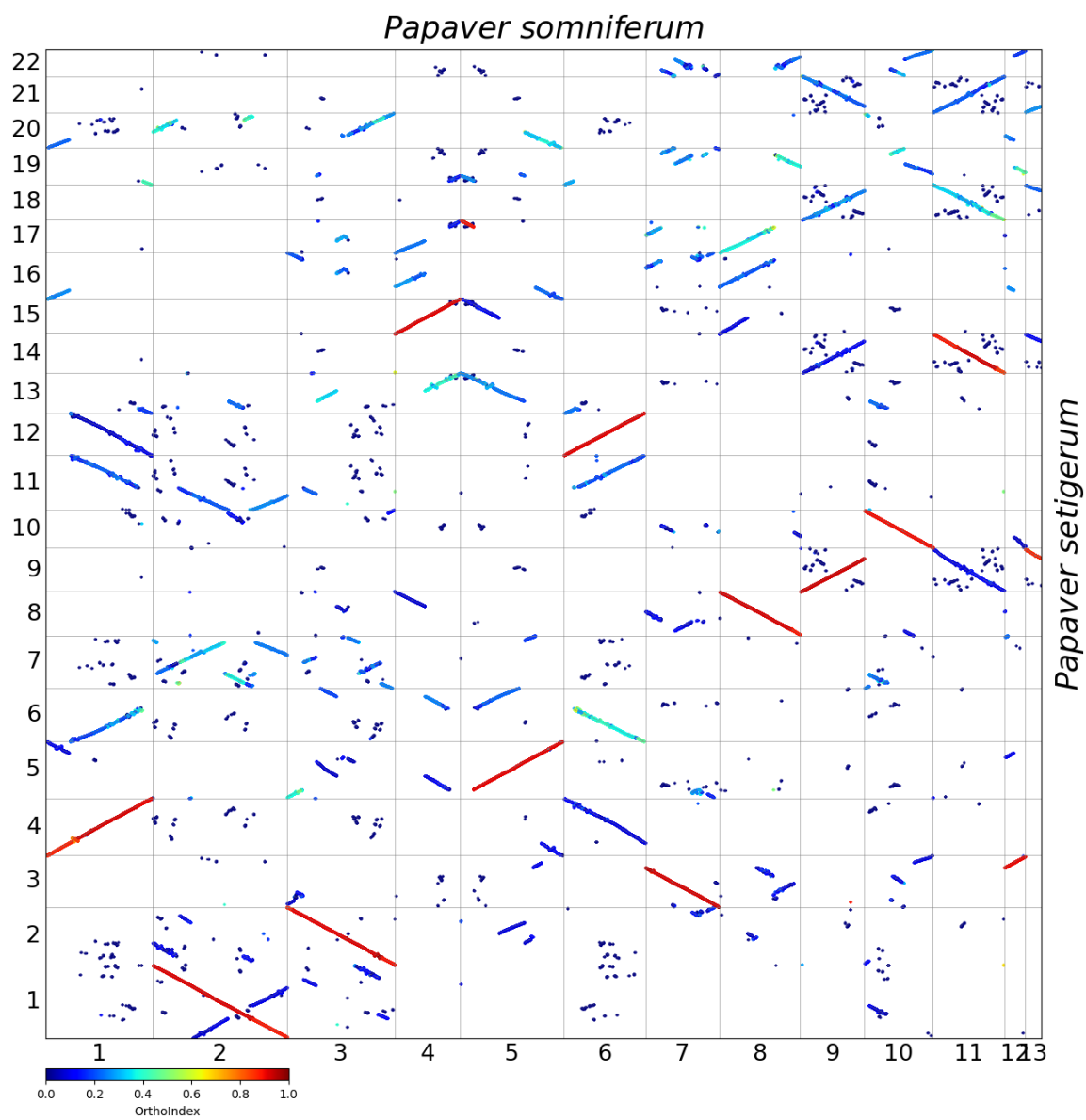


Fig. S 101. *Orthology Index*-colored dot plots showing orthologous syntenic relationships between *Papaver somniferum* and *P. setigerum*.

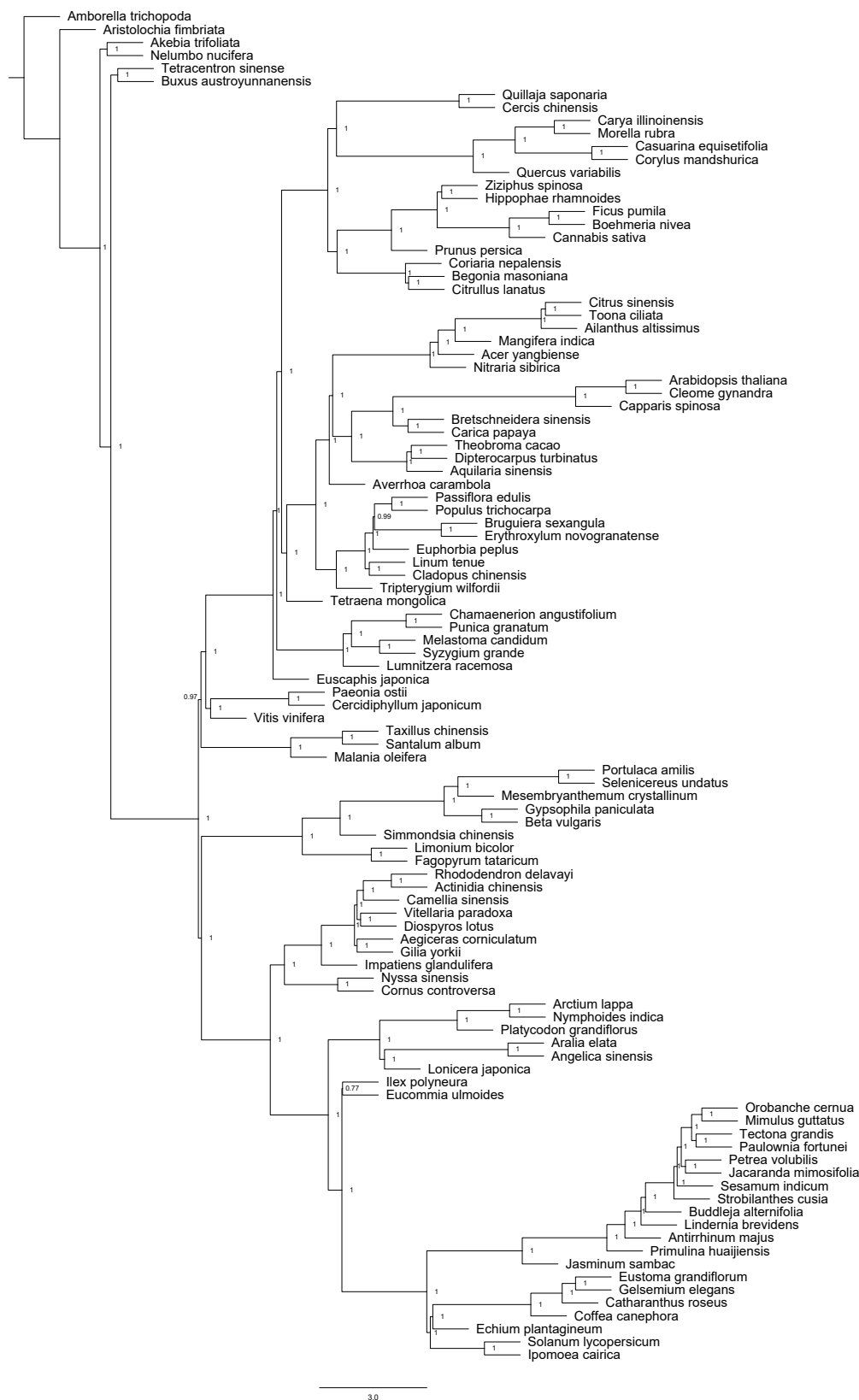


Fig. S 102. Phylogenetic relationships within the core eudicots based on 12,277 multi-copy SOGs. The numbers at the nodes are posterior probabilities from ASTRAL. Bar, 3.0 coalescent units.

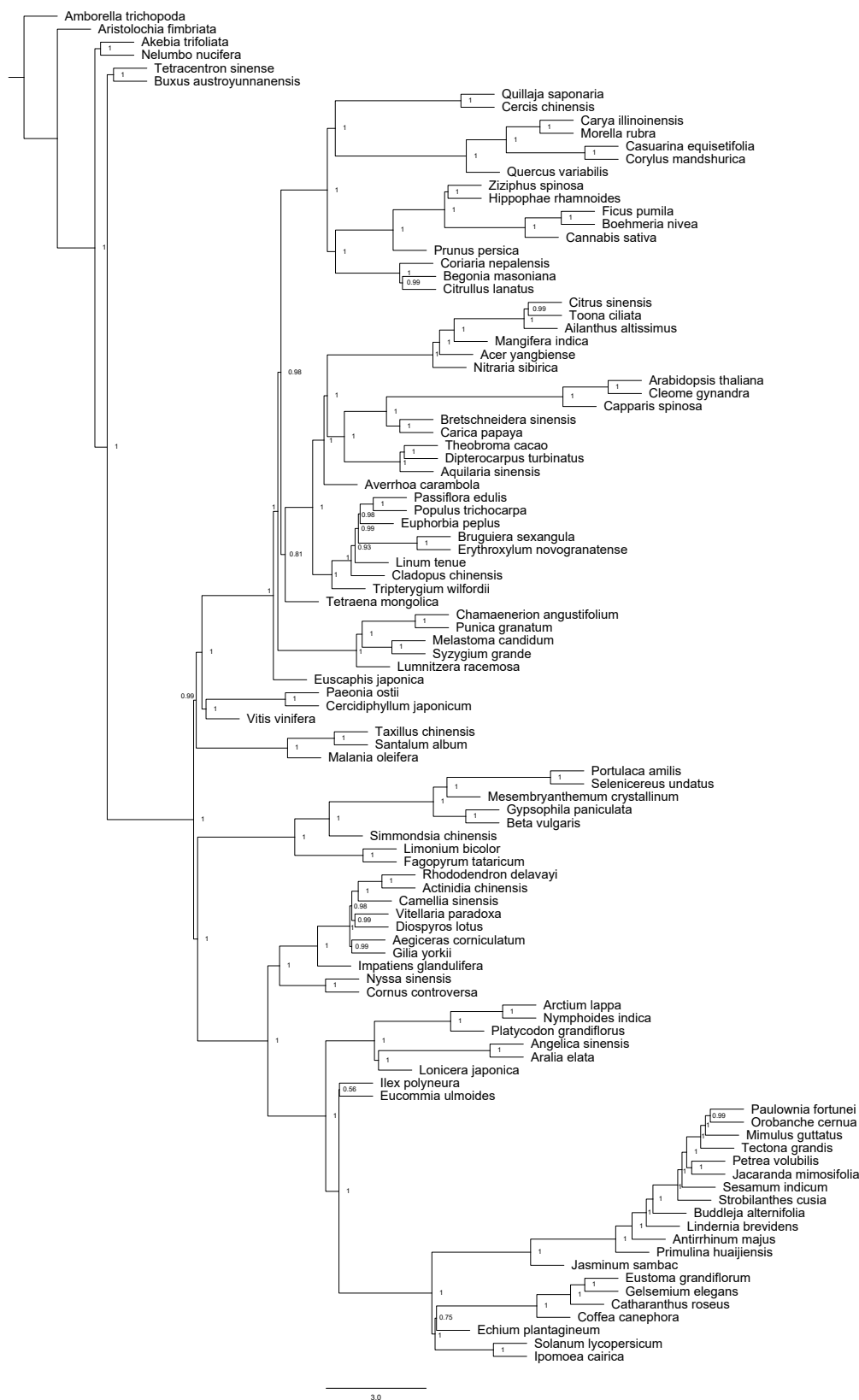


Fig. S 103. Phylogenetic relationships within the core eudicots based on 5,154 single-copy SOGs. The numbers at the nodes are posterior probabilities from ASTRAL. Bar, 3.0 coalescent units.