

Evaluation of different *Piper* species as rootstocks for grafting and screening against quick wilt and nematode resistance

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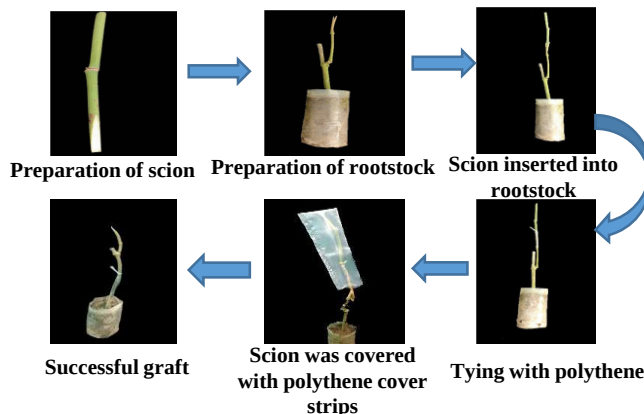
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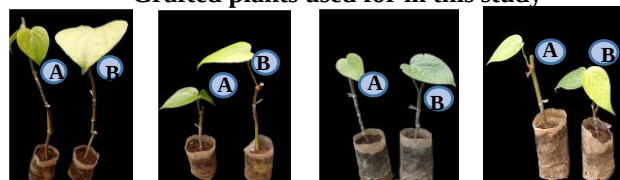
Introduction

- Black pepper (*Piper nigrum* L.; $2n=2x=52$) belongs to the family Piperaceae and is one of the oldest and most widely used spices in the world (Gordo *et al.*, 2012).
- Black pepper is recognized as “Black Gold” for its importance and also known as “King of Spices”.
- Phytophthora* foot rot caused by *P.capsici* and slow wilt disease caused by *F. solani* and *M. incognita* are serious threats to black pepper cultivation in India.
- Conventional breeding programmes to develop black pepper varieties resistant to foot rot diseases have not been successful so far since high degree resistance is lacking in the available germplasm resources. Another viable option is to exploit this resistant wild species as the rootstock and grafting with the released high yielding cultivars as scions.

Steps in the cleft grafting in *Piper* species



Grafted plants used for in this study



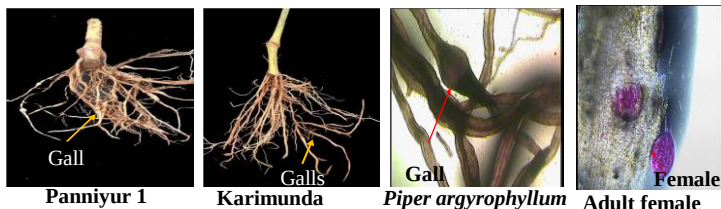
Pure culture, mass multiplication and soil inoculation of *Phytophthora capsici*



Pure culture Mass multiplication Method of soil inoculation

Result: *Piper colubrinum* + Karimunda and *Piper colubrinum* + Panniyur 1 was recorded maximum graft compatibility, no quick wilt and IISR Sakthi was recorded least nematode infestation.

Root galls producing by *Meloidogyne incognita*

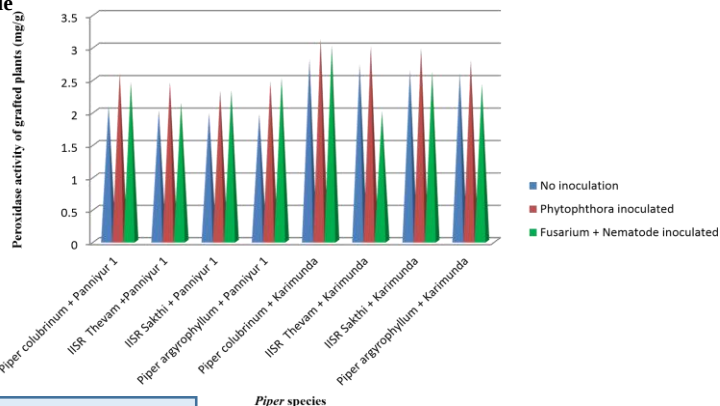
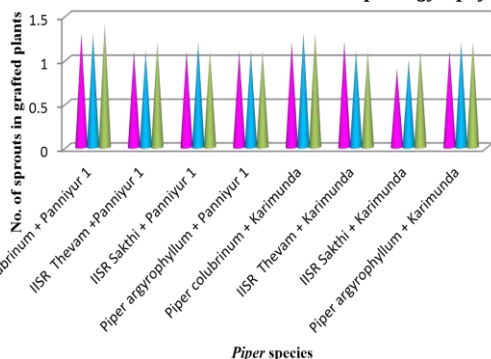


Panniyur 1

Karimunda

Piper argyrophyllum

Adult female



CONCLUSION

- P. colubrinum*, *P. argyrophyllum*, IISR Sakthi and IISR Thevam exhibited resistance for quick wilt and *P. colubrinum*, IISR Sakthi and IISR Thevam exhibited for nematode resistance, they can be recommended as potential rootstocks for management of quick wilt and nematodes in the hotspot areas. These species needed for black pepper crop improvement.

REFERENCE

- Gordo, S. M., Pinheiro, D. G., Moreira, E. C., Rodrigues, S. M., Poltronieri, M. C., De Lemos, O. F., Schneider, H. (2012). High-throughput sequencing of black pepper root transcriptome. *BMC plant biology*, 12(1), 168.