

Screening of pigeonpea genotypes through different screenig techniques against sterility mosaic disease

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The experimental material consisted of 82 pigeonpea genotypes of medium to long duration. Out of 82 genotypes, 22 genotypes were screened for sterility mosaic by using Leaf stapling technique and petiole grafting technique in pots. In field, 82 genotypes were screened by using Infector hedge technique as well as Leaf stapling technique. All the 22 genotypes except TT 701 and SM 03-17 exhibited symptom of sterility mosaic disease when inoculated adopting both leaf stapling and petiole grafting techniques. Out of 82 genotypes tested against sterility mosaic, sixteen were free from disease and grouped as highly resistant , fourteen genotypes were resistant showing 0.1 to 10 per cent disease incidence, while twenty seven genotypes were moderately resistant showing 10.1 to 25 per cent incidence of disease. Rests of the genotypes were susceptible to highly susceptible showing 25.1 to 100 per cent of disease incidence.

Key words: Pigeonpea, Sterility mosaic disease, Petiole grafting technique, Leaf stapling

INTRODUCTION

Sterility mosaic disease (SMD) is the most damaging disease of pigeonpea (*Cajanus cajan* (L.) Millsp.) in Indian subcontinent and known to occur in major pigeonpea growing areas of India, (Kulkarni *et al.*, 2002). The disease is some time referred to as the “Green plague” because at flowering times, affected plants are green with excessive vegetative growth and have no flower or pod; under congenial conditions. It spreads rapidly like a plague, leading to severe epidemics (Kulkarni *et al.*, 2004). The disease is characterized by proliferation, mosaic symptoms, cessation of reproductive growth and a reduction in the size of the leaflets (Kandaswamy and Ramakrishnan, 1960). The pathogen causing the disease was reported to be a virus (Capoor, 1952), transmitted by eriophyde mite, *Aceria cajani*, (Seth, 1962). Several lines resistant or tolerant to the sterility mosaic have been identified (Nene *et al.* 1981, Nene *et al.* 1989, Amin *et al.* 1993). However, the resistance breakdown was noticed in recent years in few pigeonpea cultivars. There is an urgent need to screen the large genotypes /germplasm by using different transmission techniques for sterility mosaic disease so that tolerant/resistant lines can be used for the development of resistant variety for the disease.

MATERIALS AND METHODS

The present study was conducted during *kharif* 2003-2004 in the Department of Mycology and Plant Pathology, Institute of Agricultural Sciences, Banaras Hindu University. The experimental material consisted of 82 pigeonpea genotypes of medium to long duration. In field condition, 82 genotypes were screened by using Infector hedge technique (Nene and Reddy ,1976 b) as well as leaf stapling technique. Out of 82 genotypes, 22 genotypes were screened for sterility mosaic disease by using leaf stapling technique (Nene and Reddy , 1976 a) and petiole grafting technique (Reddy *et al.*, 2002) in pots.

Screening of pigeonpea genotypes by leaf stapling technique :

Ten selfed seeds of each of 22 genotypes of pigeonpea were sown in three pots (30 cm in diameter) filled with field soil on 1st October 2003. Every plant of each genotype was inoculated with disease leaflet at the age of 15 days adopting leaf stapling technique. The genotype ICP 8863, highly susceptible to SMD served as control. The inoculated plants were regularly monitored to observe the incidence of sterility mosaic. The per cent disease incidence was calculated as mentioned below :

$$\text{Per cent disease incidence} = \frac{\text{Number of infected plants}}{\text{Total number of plants}} \times 100$$

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