

A NEW TECHNIQUE TO SCREEN PIGEON PEA FOR RESISTANCE TO STERILITY MOSAIC

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Sterility mosaic of pigeon pea occurs widely in the Indian sub-continent. Capoor (1952) established the infectious nature of the disease. Seth (1962) reported transmission of the causal agent by the eriophyid mite Aceria cajani Channabasavanna, and this was confirmed by Nene (1972). Nene (1972), and Ramakrishnan and Kandaswamy (1972) independently reported transmitting the disease by tying the branches of diseased plants on to healthy ones (the 'twig-tying' technique). Ramakrishnan and Kandaswamy (1972) used this procedure to screen pigeon pea germplasm/cultivars at Coimbatore, India but could find no resistance source.

At ICRISAT, it was felt that a more efficient technique for screening pigeon pea germplasm and breeding material for resistance to sterility mosaic was needed. We are reporting here a simpler and more efficient technique, the 'leaf-stapling' technique, in which leaflets from diseased plants infested with mites are stapled to the primary leaves of test seedlings.

When the diseased leaflets are larger, one diseased leaflet is folded on each primary leaf in such a way that the undersurface of the diseased leaflet comes in contact with both surfaces of the healthy one; they are then stapled together. When the diseased leaflets are smaller, two unfolded leaflets are stapled to each primary leaf with the undersurfaces of the diseased leaflets touching both surfaces of the one to be inoculated. Normally, 100% infection is obtained with one folded or two unfolded leaflets stapled to each primary leaf of 10-15 days old seedlings of susceptible cultivar Sharda. The distinct advantages of the 'leaf-stapling' as opposed to the 'twig-tying' technique are (i) screening is possible with very young seedlings (10-15 days as against one-month old seedlings), (ii) symptoms show up in one week instead of 2-3 weeks, (iii) symptoms are severe and clearer on younger seedlings, and (iv) less diseased leaf material is needed for inoculum. This technique has been used to screen nearly 3000 lines of which six (ICRISAT-2376, 3783, 6986, 6997, 7035 and 7119) have been identified as immune.

References

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