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Initial development of an ELISA kit using imported antiserum for Banana Bract Mosaic Virus (BBrMV) indexing of Banana in tissue culture plant production

Banana has become one of the main economic fruit crops in some areas in Sri Lanka. The main constraints in banana cultivation are i) difficulty to find suitable and healthy planting material in large numbers, and ii) some significant virus infections. Present study reports investigations conducted on banana improvement with the objective to overcome above major constraints. Two selections of Embul (Mysore, AAB) and Cavendish cultivars were obtained by mutation breeding on early fruiting and short height. Micropropagated plants of the above selections were tested for stability of the characters in the second generation. As mass production of plants was in progress, indexing/ testing of mother stocks used in micropropagation for BBrMV has become essential as this virus is reported to be spreading rapidly. Techniques were adopted for routine testing of mother stocks, and random testing of micropropagated plants for BBrMV by DAS ELISA using imported commercial (Agdia., USA) kits. BBrMV is one of the most important viruses affecting the banana cultivations in many countries. BBrMV is a potyvirus first reported in 1979 in Philippines and recently (1995) in Sri Lanka. The potential of developing a diagnostic kit for BBrMV was explored with the objective of developing a low cost ELISA detection kit, where technology transfer is involved. Antiserum from another laboratory (Queensland Department of Primary Industries [QDPI]) was tested as the coating antibody replacing the relevant component of the Agdia kit. Results showed a high efficiency with the QDPI antibody as a coating antibody. Visual disease symptoms on plant parts were confirmed, and BBrMV isolation for

polyclonal antibody production was carried out. Isolated BBrMV was purified by sucrose and Cesium chloride density gradient centrifugation, and confirmed by UV absorption measurement together with the use of Agdia commercial ELISA kit. Once the local antiserum is produced, it should be possible to develop an effective and low cost diagnostic kit for local BBrMV diagnosis in banana, especially in the program of tissue culture mass production of banana plants.