

1. INTRODUCTION

Australimusa is a section of the genus Musa in which is placed Musa textilis Née, abacá or Manila hemp, the world's foremost cordage fibre, valued particularly for marine work because of its immense strength and resistance to the corrosive action of salt water.

The main area of production of Manila hemp is the Philippines which still maintains a virtual monopoly regardless of successful cultivation of the crop in Central America, Sumatra and North Borneo. Previous attempts to introduce abacá to other tropical areas have proved unsuccessful. This is probably due to the exacting soil and climatic requirements of the species and the high cost of production of the fibre, particularly where labour is not skilled in handling the crop.

Abacá breeding has previously been confined to the Philippines. It has consisted mainly of artificial hybridization between varieties. A recent study in relation to abacá breeding is that of Umali and Valdez (1951), in which abacá, pacol and canton were studied with a view to determining whether they were cross-fertile. It was hoped that hybrids might be produced which would have the immunity to bunchy-top and mosaic of pacol and canton while still retaining the desirable fibre qualities of abacá. Results showed that abacá and pacol were interfertile while abacá x canton and pacol x canton were incompatible. These results are not surprising in view of the fact that pacol is M. balbisiana Colla, (Eumusa, $2n = 22$), while canton is a sterile hybrid ($2n = 21$), between pacol and abacá, (Australimusa, $2n = 20$): (Cheesman, 1949). It seems unlikely that pacol and canton will prove useful in an abacá improvement programme. In fact, the only alternative, or adjunct, to variety crosses is the use of other Australimusas in a hybridization programme with abacá.

This has now been realised by the Filipinos and at least one Australimusa, M. lolodensis Cheesman, is being used in their programme of hybridization with a view to obtaining mosaic resistant plants. M. lolodensis is highly resistant to mosaic (Kent, 1954).

Among the collection of Musa at the Imperial College of Tropical Agriculture are several Australimusas, and hybrids of them between each other and with M. textilis. Their fibre characteristics are described in this paper, the work having been planned as a preliminary investigation into the possibility of improving abacá by interspecific hybridization.

M. peckellii Lauterbach - I.R. 229, from New Ireland.

M. wablayi P.v. Mueller - I.R. 200 and 201, from Solomon Islands, type clones of M. spicata Simmonds.

M. angustigemma Simmonds - I.R. 194 and 195, from New Guinea, the former the type clone.

M. lolodensis x M. textilis - a triploid, I.R.

M. textilis x M. lolodensis

M. lolodensis x M. peckellii

M. peckellii x M. lolodensis

M. peckellii x M. angustigemma

M. textilis x M. peckellii

M. textilis x M. angustigemma

Similar examinations have been made of M. violacea Ridley - I.R. 105, from Malaya (Singapore, No. 20), and the Chinese M. balbisiana Colla, several clones of various origins; M. basilar Sieb. - I.R. 704, from Hainan and Okinawa, Southern Japan; M. illinoensis Cheesman - I.R. 101, the type clone, from