B-41: A Taxonomic and cytogenetic characterisation of spicata in coconut (*Cocos nucifera*)

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Spicata in coconut (*Cocos nucifera*) has been introduced as a special form of the variety typica, and many deviations exist in the spicata inflorescence compared to ordinary tall variety. Suppression of male flowers on the inflorescence and the presence of a large number of female flowers in the former is the main difference.

The objective of the present study was to document the different spicata types in coconut and to determine the genetic control of spicata character in order to use

this character efficiently in a breeding programme to increase the yield potential of coconut palms.

Two types of spicata infloresences, a branched type with short spikelets and an unbranched type in which all female flowers and the few male flowers are fixed to the peduncle were identified. The unbranched type showed overlapping of the male and female phases of the infloresence whilst in the unsplit spathe leading to self pollination and infloresences observed in the branched type showed non overlapping male and female phases leading to outcrossing. Deviations in the number of perianth parts and number of anthers in the male flowers were observed in spicata infloresences.

The genomic composition of spicata was studied using the chromosome squash technique. The squash method performed on *in vivo* as well as *in vitro* grown cells using aceto-carmine showed that the spicata form consists of cells of normal chromosome complement of coconut 2n=32 and cells with an aneuploid chromosome complement varying from 18-24. The relative DNA content of both cell categories were obtained using the Flow Cytometer. The DNA histogram resulting from spicata cells recorded 2 clearly distinguishable peaks with channel numbers 43.3 (D1=1) and 20.7 (D1=0.5). Further a 1:1 mixture of standard tall coconut with spicata recorded peaks with channel numbers 38.4 D1=1) and 22.4 (D1=0.6) respectively. The results indicate that the ratio between the relative DNA contents of diploid to aneuploid cells in the spicata form range from 1:0.5 to 1:0.6.