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## NEW PLANT TYPE IN GROUNDNUT, *ARACHIS HYPOGAEA* L.

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THE various cultivars of groundnut, are all included in a single species, *Arachis hypogaea* L. Two subspecies: *ssp. hypogaea* Krap et Rig. (Virginia) and *ssp. fastigiata* Waldron (Spanish and Valencia) were recognized<sup>1</sup>. In *ssp. hypogaea*, the vegetative (i.e., bearing normal green leaves) and reproductive branches develop alternately. The stem does not bear any flowers or inflorescences. In *ssp. fastigiata*, reproductive branches occur sequentially. The main stem bears flowers. Other agronomic differences also occur, but intermediate plant types for such characters were induced and were also isolated in intermutant crosses<sup>1-4</sup>. Members of the subspecies are crossable, but no intermediate forms are known for these two characters. In the present report, the occurrence of an intermediate type of plant has been recorded.

Two Virginia cultivars: Robut 33-1 and Shulamith were crossed reciprocally. Robut 33-1 is an early maturing selection from Robut 33 (a Valencia variety) and Shulamith is an introduction. The F<sub>1</sub> and F<sub>2</sub> progenies of the cross in both the directions were

alternately branched. The F<sub>2</sub> plants were bulked and a large F<sub>3</sub> progeny was grown.

The plants appeared uniform with a spreading habit and dark green foliage. Three types of plants could be distinguished. Majority of the plants were of the alternate type. Considerable number of plants were sequential. A low frequency of the plants were intermediate type (figures 1 and 2). The stem after the production of the  $n+1$  branches at the base, had an inflorescence in each of the subsequent axil. The vegetative and reproductive branches were distributed alternately on the  $n+1$  branches. Such a plant could be classed neither as *ssp. hypogaea* nor as *ssp. fastigiata*. This represents a new plant type so far not recorded in *A. hypogaea*. Voucher specimens of all three types were deposited in the herbarium of the National Fellow Project at Hyderabad.

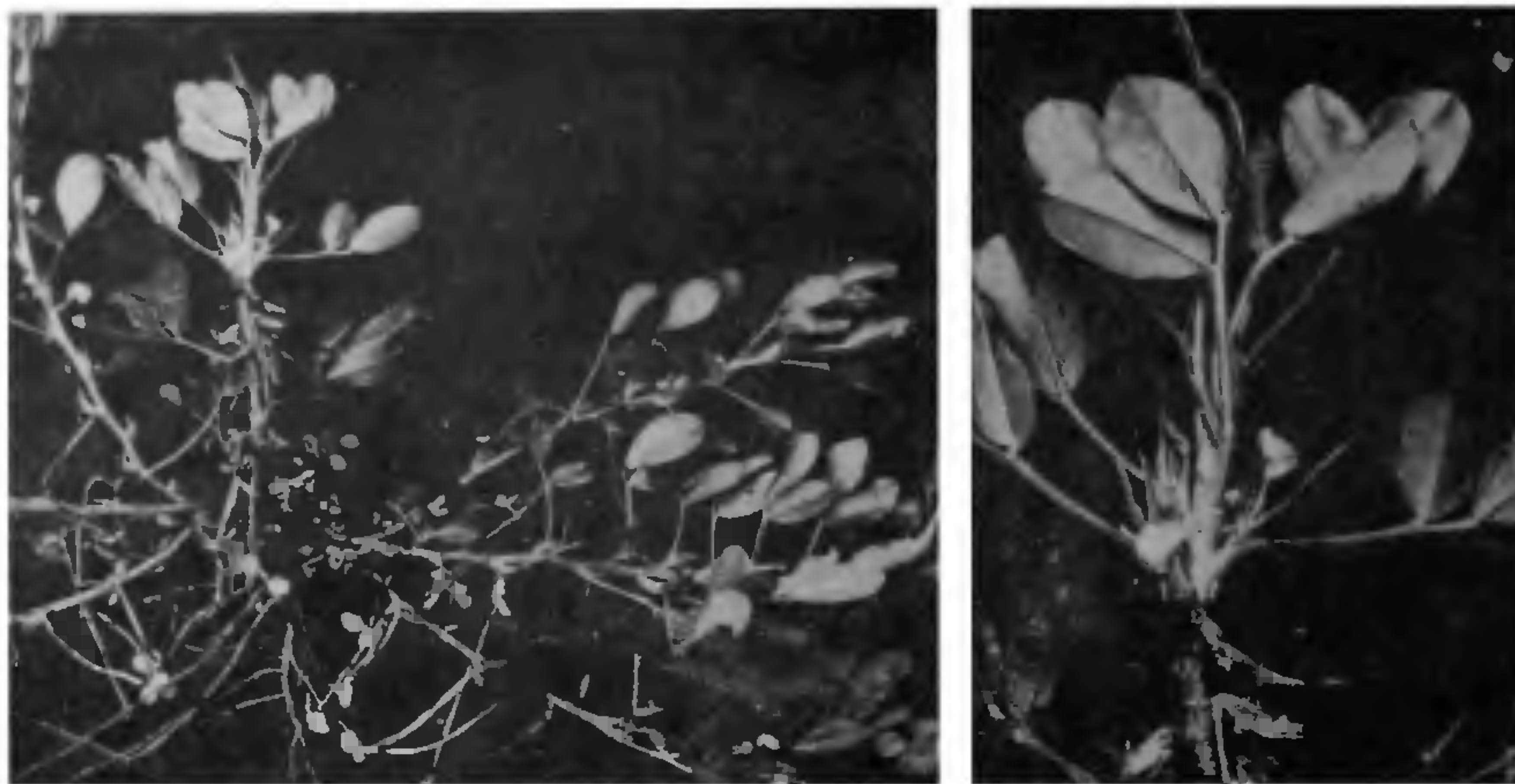
Groundnut breeders<sup>7,8</sup> have postulated that an ideal plant type in groundnut should incorporate characters of the Virginia type (fresh seed dormancy, large kernels, higher yield potential, dark green foliage, running habit etc), in a Spanish frame work (early maturity, compact plant type, sequential flowering etc). Such plant types were not only induced or produced in recent times but were even entered into AICORPO Trials in 1983<sup>9</sup>. The intermediate type obtained in the present study is a addition to the basic material for such an ideotype.

The new type of plants bred true for the most part in the next generation. Only 2 virginia runner type of plants occurred in a progeny of 192 plants produced from 4 plants. The phenotypic stability, productivity and genetic mechanism related to this new plant type are under detailed investigation.

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**Figures 1 & 2.** 1. An intermediate type plant with alternate distribution of vegetative and reproductive branches on  $n + 1$  order branches and with inflorescences on the main stem. 2. Main stem enlarged to show flower in the axil.

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**ORIGIN AND SEQUENTIAL PATTERN OF MATURATION OF FOLIAR SCLEREIDS IN *MOURIRI GUIANENSIS* AUBL. (MELASTOMATACEAE)**

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FOSTER<sup>1</sup> has reported terminal sclereids of varied types in all the investigated species of *Mouriri* Aubl. Further he has observed considerable fluctuations in terminal and diffuse patterns of distribution of sclereids in the cleared laminae of *M. guianensis* Aubl. According to him this plant 'has proved the most variable of all the entities investigated with respect to sclereid morphology'. In agreement with Foster's findings, Morley<sup>2</sup> has also confirmed fluctuations in the

sclereids in this species. This mixed pattern<sup>3</sup> of leaf sclereids in this plant warranted a detailed study particularly in respect of their origin and sequential pattern of maturation.

Fresh leaf specimens were collected from a medium-sized tree growing in the vicinity of the famous Banyan tree of the Indian Botanic Garden, Howrah, India. About 20 leaves, namely of different sizes corresponding to different age groups from the young primordial stage to old leaves were collected from the tree and subjected to sectioning and clearings following the methods suggested earlier<sup>4</sup>.

The development of sclereids was traced from the earlier stage of their formation. Transections of the embryonic leaves exhibited a compact arrangement of cells with intercellular spaces in between them. In slightly later stage, the mesophyll exhibited a clear differentiation into palisade and spongy cells. With the onset of tissue differentiation some of the young sclereid initials made their independent appearance in the spongy region, and also terminal or sub-terminal to the developing vascular strands. Formation of the sclereid initial was not limited to the early phase of tissue maturation but occurred over a relatively extended period of time. In transection diffuse sclereid initials appeared as isolated polygonal cells in tight contact with the adjacent cells of the mid vein portion of the expanding lamina. At the same time a few enlarged cells were found in terminal or subterminal position with reference to developing vascular strands.