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Progress Report 2 - USAID Grant

RG/AID/1

July - December - 1984

Prof. H.P.M. Gunasena

23/1/85

1. Collection of Germplasm

The collection of germplasm of Dioscoreas and Aroids which began in November 1983 was continued. The collections were done in three more districts, namely Ratnapura, Kegalle and Kandy. It is intended to cover the other districts in the current year. The accessions collected so far has been harvested and are in storage. There are 487 accessions in the present collection. (A list of the accessions was forwarded with Progress Report No. I, January - June 84). The collection from the above mentioned three districts will be listed in Progress Report No. 3 as they are not finalized upto the time of writing of this report.

(A) Details of Research Undertaken on Dioscoreas in the period under review include the following:

1. Studies on morphological, anatomical and biochemical characters for the classification of Dioscoreas - The accessions collected were planted in the field on 27.04.84 in 1 x 1m. planting holes. A single sett of the accession was planted in each hole and filled with a mixture of cow dung and soil in equal proportion. No inorganic fertilizers were added, stakes, 8 feet long were provided at the end of two weeks.

The observations included the following,

(a) Study of morphological characters with illustrations, photographs and herbarium specimens of the different accessions have been completed. These included twining of stem, wing characters, presence of thorns, pubescence, color of leaf, tuber, stem, venation, flowering and fruit formation.

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(b) Foliar anatomical and epidermal characters of all accessions have been completed.

(c) Permanent microtome sections of the leaves were prepared. The lamina and cuticle thickness and length and breadth of palisade cells using a filar micro meter eye piece has been completed.

(d) Biochemical characters - methonalic extracts of the leaves of different accessions were screened for flavanoid constituents by directional paper chromatography.

(e) Comparative studies were undertaken on the epidermal features such as stomatal index, length of guard cells, and shape and size of epidermal cells to differenciate between accessions.

(B) Aroids - several accessions of Aroids were collected. They were planted at the University Experimental Station, Dodangolla. The ornamental aroids or caledium were also collected and are grown in the green house complex of the Faculty of Agriculture at Peradeniya.

(C) Plectranthus Species - Nineteen plectranthus spp (Innala) have been collected and are under multiplication.

Involvement of Post Graduate students

Mr. D.A.P. Dissanayake has been registered as a post-graduate student at the Postgraduate Institute of Agriculture under this project. He is presently in charge of the collection of the Dioscoreas, Aroids and Plectranthus species. His main areas of study will be the classification of Aroids, Dioscoreas, and Plectranthus spp, and their chemical analysis for nutritive value, phenolic compounds and phyto-chemical screaming for sapogenin and alkaloids.

Mrs. N. Harischandra who has been associated with the project under the sponsorship of the International Development Research Center has completed some of the work on classification of Dioscoreas. She is presently engaged in some

laboratory work studying the anotomical features of Dioscoreas. She has made good progress in her work.

Procure of Equipment and Chemicals

A camera and some of the accessories have been received. Chemicals have been ordered by the Authority and are ready for collection.

Other Research on Yams

An experiment was conducted to study the effect of cut Vs uncut seed and size of seed in Aroids. The study was undertaken in April 1984, and concluded in November 1984. The trial was replicated thrice. The salient findings are that the cut seed yield better than uncut seed and the increase in final tuber yield with increase in seed size. The data have been analysed and will be presented in the form of journal article in due course.

Plan of work - January - June 1984

1. The collection of germplasm in the rest of the districts will be continued.
2. The collection of ornamental aroids will be expanded.
3. Chemical analysis of Dioscorea spp will be given emphasis during the next 6 months.
4. The classification of all species will be continued.