"MERICLONING" OF TARO (*COLOCASIA ESCULENTA*)*

M.O. Mapes and W.J. Cable**

SUMMARY

Calluses from mature taro tissues are difficult to obtain, but shoot production can be induced with the shoot meristem technique. To achieve maximum growth and multi-propagation of desirable clones, an effective procedure appears to be a combination of the shoot meristem technique and a supplementary treatment for callus formation.

RESUME

Il est difficile d'obtenir des cals des tissus du tarot, mais on peut provoquer la produccion des pousses par la méthode de méristéme appliquée aux pousses. Pour obtenir la croissance maximale et la pluripropogation de clónes désirables, il se révèle efficace de combiner la méthode de méristème des pousses à un traitement supplémentaire pour la formation des cals.

RESUMEN

Los callos de tejidos maduros de malanga son dificiles de obtener, pero la producción de follaje se puede inducir con la técnica de meristemos del follaje. Para lograr el máximo crecimiento y propagación de los clones deseables, la combinación de la técnica de meristemos del follaje y un tratamiento suplementario para la formación del callo, parece ser un procedimiento efectivo.

INTRODUCTION

Aseptic propagation of monocots has been achieved with members of diverse families. Among them are orchids[10,13,18] asparagus[8,14,15,17], sugarcane[1,5], grasses[7] (and unpublished data of U. Urata), oats[2], rice[12] and bromeliads[9]. More recently, Hartman and Zettler[3] reported that meristem-tip cultures of aroids could be successfully used for rapid propagation and for obtaining pathogen-free plants[4]. For rapid multiplication of desirable clones of taro it would be useful to find rapid means of propagation.

Attempts were made in Hawaii by Kikuta and Parris[6] to multiply planting material rapidly by propagating from the axillary buds on the mature corm and on 'huli' (a Hawaiian word for taro stem cuttings containing 1.2 mm of the corm tip and 15 to 25 cm of petiole base). Their idea was to stimulate the growth of normally dormant axillary buds. By destroying the growing point of the corm, the apical dominance inhibiting the development of the lateral buds was removed and a number of shoots developed. The present study began in 1972 assessing the feasibility of utilizing tissue cultures to obtain larger numbers of clonal plantlets of the taro cultivar 'Niue'.

MATERIALS AND METHODS

Taro cultivars were obtained from Lyon Arboretum of the University of Hawaii in 1971 and 1972. The following plants showing special features were selected for culturing.

Taro Niue, preferred Samoan taro,	Accession No L-69.500
Niue Uli, " " "	L-70.253
Eleele Naioea, somewhat resistant to *Phytophthora*,	No L-68.133
Makoko,	No L-69.047
Elapaio, an ornamental with variegated leaves.	No L-68.124
Uahiapele (Smoke of Pele), maroon coloured leaves,	No L-69.049
Manini Kea, an ornamental with white stripes on petiole,	No L-68.138

Preliminary studies with Taro Niue indicated that calluses were difficult to induce from various plant parts.

* Published with the approval of the Director, Hawaii Agricultural Experiment Station, as Journal Series No. 1694

**Agronomy and Soil Science Department College of Tropical and East-West Center grantee in Botany Department, University of Hawaii, Honolulu, Hawaii, respectively.