Rev. Biol. Trop., 35(2): 351-352, 1987.

Basic dye staining of the nucleolus in populations of *Pancratium hirtum* A. Chev. (Amaryllidaceae) in Nigeria

Mustapha. O.T.
Department of Biological Sciences, Bayero University, Kano, Nigeria

(Received November 4, 1986)

The genus *Pancratium,* by the latest revision of the family Amaryllidaceae (Hepper 1968), is represented by *P. hirtum.* A. Chev. and *P. trianthum* Herb. Morton (1965) produced a well documented taxonomic report on the two species. *P. hirtum* inhabits a variety of ecologic niches in the Savanna vegetation zone in Nigeria, where representatives were observed to demostrate minor but obvious morphological differences. In the interphase nucleus, much of the heterochromatin is situated in close association with the peripheral contents of the nucleus. In addition to these small peripheral clumps of deeply stained materials, the nucleus contains a larger central or eccentrically placed nucleolus which also has affinity for basic dyes. Initial confusion of the nucleolus with prominent clumps of chromatin persisted until the development of improved staining methods, which consistently showed that it differed from chromatin in its staining affinities. In addition, the configuration of the nucleolus in any particular cell type is relatively consistent (Fawcett 1981), hence, its usefulness in establishing relationship. With a special silver impregnation technique, Estable and Sotelo (1951) and Fernández - Gómez (1969) found that nucleoli of many cell types stained differently from the other sorrounding constituents of the cell. Apart from the taxonomic studies carried out by Morton (1965) on the two species of *Pancratium* and karyotypic variation studies conducted by Oyewole (1986) on populations of *P. hirtum,* there is very little information on aspects of populations of *P. hirtum* in Nigeria. The present investigation was undertaken in order to obtain evidence from basic dye staining of nucleoli in *P. hirtum* population to supplement evidence from the obvious morphological differences and Oyewole's

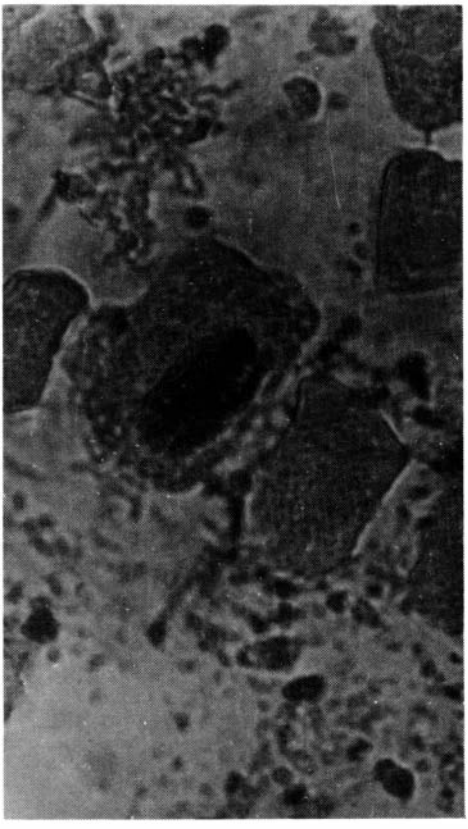

Fig. 1. Silver impregnation of root tips of *P. hirtum* x 800

(1986) karyotype variation, with a view to establishing relationship among the various populations and their taxonomic status.

The different populations examined were collected from different parts of Nigeria under various vegetational covers and in different soil types. They were brought into cultivation in the nursery. Nine morphs were recognized and designated C_1, C_2, C_3, C_4, C_5, C_s, C_h, C_f, and C_n. The method of Fernández-Gómez (1969) was employed because it showed more satisfactory results.

Nucleoli in all the groups stained dark brown, the nucleus an ochraceous yellow and the cytoplasm pale yellow (Fig. 1). Also they all appeared to be homogeneous. This study has shown that even though different populations of *P. hirtum* examined exhibit minor morphological and karyotypic differentiation, they are yet to diverge with regards to the configuration of their nucleoli. In the light of this finding, different populations of this species can therefore not be assigned different taxonomic status until further evidences are obtained from other sources.

REFERENCES

Estable, C. & J.R. Sotelo. 1951. Una nueva estructura celular. El nucleolonema. Publ. Invest. Sci. Biol. 1: 105-126.

Fawcett, D.W. 1981. Nucleus. *In:* The Cell. W.B. Sanders Comp. Phil. Lond. Toronto. 197-292.

Fernández-Gómez, E. J.C. Stockert, J.F. López - Saez & G. Gimenez - Martin. 1969. Staining plant cell nucleoli with silver nitrate after formalin - Hydroquinone Fixation. Stain Technology 44: 48-49.

Hepper, F.N. 1968. Flora of West Tropical Africa. pp. 131-137.

Morton, J.K. 1965. The experimental taxonomy of West African species of *Pancratium* L. (Amaryllidaceae). Kew. Bull. 19: 337-347.

Oyewole, S.O. 1986. Karyotype variation in *Pancratium hirtum*. A. Chev. (Amaryllidaceae). Annals of Missouri Botanical Garden Vol. 73. (In Press).