MICROPROPAGATION OF *NEPHROLEPIS EXALTATA* (L.) SCHOTT

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Introduction. *Nephrolepis exaltata* (L.) Shott is a major indoor and outdoor foliage plants (1). It spreads by separating adult plants, but commercially it is difficult and very slow (2). Fern production in Mexico in 2010 was 22,844.2 t (3) which indicates the existence of a potential market in our country. Despite being a widely studied specie not micropropagation protocol *N. exaltata* for mother plants grown in Mexico and Yucatan least. The objective was to create a protocol for micropropagation of *N. exaltata* enabling mass production of this specie.

Methods. *N. exaltata* young fronds and rhizome tips were disinfected with 70% alcohol for one minute and 10% commercial bleach for 5 min and plated on MS without regulators, after 10 days, showed no contamination explants were transferred to fresh media, five dilutions were evaluated for MS induce outbreaks (0, 25, 50, 75 and 100%), three concentrations of BAP (2.2, 3.3 and 4.4 μM) combined with two concentrations of KIN (2.3 and 3.3 μM) for multiplication, four concentrations (3, 6.9 and 12 μM) of IAA and IBA for rooting and acclimatization was used soil (Luvisol Rhodic 100%), and three substrate mixtures, which consisted of 80% peatmoss + perlite 20%, Tsi'tsil Che 80% + 20% perlite and coconut fiber 80% + perlite 20%.

Results. Disinfection presented axenidad 85%, both as explants rhizome and frond. In the shoot induction frond explants were oxidized at 30 days while the rhizome induced sprouting 100% in all treatments within 20 days, 75% MS had higher number of shoots and fronds being statistically different than the other treatments (Table 1).

Table 1. Induction of shoots from rhizomes explants *N. exaltata.*

Treatment (%)	Shoots (No.)	Fronds (No.)
T_1: 0*	4.46 c	17.8 c
T_2: 25*	5.35 b	21.4 b
T_3: 50*	4.03 c	16.1 c
T_4: 75*	7.25 a	29.0 a
T_5: 100*	5.57 b	22.2 b

The shoot multiplication was not satisfactory when added to the culture medium KIN and BAP, in this case it was observed the green globular bodies (GGB) formation (Fig. 1).

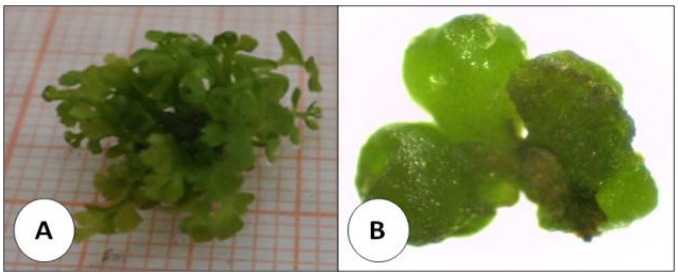

Fig.1 *N. exaltata* multiplication. A) Bud grown in medium without regulators. B) GGB's originated in medium with BAP and KIN.

The addition of 8 μM of IAA increases by 42% the number of roots compared to the control and is statistically different from other treatments. After 28 days of acclimatization, peatmoss 80% + perlite20% and coconut fiber 80% + perlite 20% blends was observed 100% *ex vitro* survival, however, the plants grown in peatmoss and perlite showed higher fresh weight (8.19 g), dry weight (0.95 g), fronds number (10.29) and shoot length (8.6 cm) were statistically different from the plants grown on other substrates.

Conclusions. The MS at 75% strength, increase 35% shoot formation with respect to 100% of their concentration. The addition of BAP (2.2-4.4 μM) and Kin (2.3-3.3 μM) to the culture medium promotes 100% the formation of green globular bodies (GGB's). The addition of 9 μM IAA to the culture medium increases the number of roots to 42% versus the control. The mixture of peat moss 80% and perlite 20% increase 57% in fresh weight of plant, 32% dry mass, 41% the fronds number and 16% shoots length with respect to plants grown in Luvisol Rhodic.

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References.

1. González R. H., Herrera M. J. A y Ramos V.A.C. (2006). *Revista Chapingo. Serie Horticultura*. Vol (12): 141-146.
2. Cardoso, C.P.; Lopes Da Silva, A.L.; Henz, E.T.; Dilson, F.; Bisognin, A. (2004). Caderno de Pesquisa serie Biología vol(16): 43-49.
3. Sistema de Información Agroalimentaria de Consulta (SIACON)-SAGARPA. 2010. México. (05/December/2011).