In vitro propagation of *Scilla hyacinthina* (Roth.) Macbr.

Chakravarthy and Sen[1] reported an account of induction of callus and regeneration in *Scilla indica*. Callus was induced on leaf tips and scale explants from sprouting bulbs. On transfer to a regenerating medium, shoots and roots were formed. Hussey[2] reported regeneration from bulb, leaf, inflorescence axis and ovary explants in *Scilla* on MS[3] medium without growth hormones. This situation prompted us to investigate a local species, *Scilla hyacinthina* growing wild on the campus of the Madurai Kamaraj University. This species is known to occur in scrub forests up to an altitude of 1000 m, especially on bare grassy slopes[4]. It is medicinally important, since it is used as an expectorant, diuretic and cardiac stimulant[5].

Fruits of *S. hyacinthina* were collected and washed in detergent solution. Surface sterilization in 0.1% mercuric chloride solution for 5 min was followed by thorough washing in sterile distilled water. The embryos were aseptically removed and planted on MS[3] medium devoid of growth regulators in test tubes, gelled with 0.8% agar-agar and pH adjusted to 5.8. The cultures were incubated under fluorescent illumination (4000 lux), 16 h photoperiod at 25 ± 1°C temperature.

About 80% of the embryos developed into seedlings in 15 days. In about 20% of the cultures, the cotyledon formed a white, friable and organogenic callus. The numerous bulblets that regenerated on the surface of the organogenic callus (Figure 1 *a*) in 60 days were isolated and planted on the same medium. Within 4–8 weeks each small bulblet developed into plantlet with two to three green leaves and considerably small bulb. One or two roots developed after the development of the bulb. The immature plantlets (Figure 1 *b*) either with roots or without roots were successfully transferred to the soil (Figure 1 *c*) after a course of hardening treatment.

Hussey[2] found a very high level of totipotency in tissue explants and callus cultures of some members of the Liliaceae, Iridaceae and Amaryllidaceae. The present study confirms this observation in respect of *S. hyacinthina*. However, in this species callus was spontaneously induced from cotyledon tissue even in the absence of any growth hormones in the MS medium[3]. This contrasts sharply with the observation of Chakravarthy and Sen[1] on *Scilla indica*, in which species addition of coconut water, and 2, 4-D was found to be essential for callusing. In view of the above observation the species deserves further studies in tissue culture.

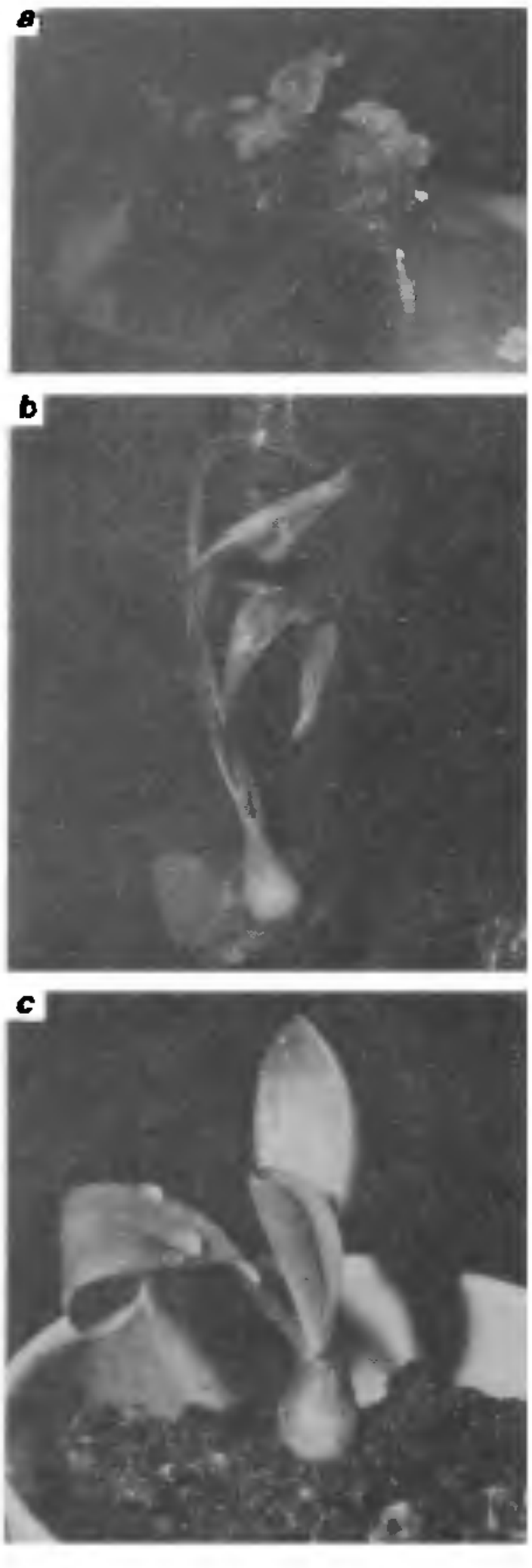

Figure 1 a–c. *a*, Cotyledon callus with small bulblets in MS medium without any growth regulators; *b*, Plantlet developed from the isolated bulblet in the same medium (2 months old); *c*, Plantlet transferred to soil.

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