

## DEVELOPMENT OF *IN VITRO* SOMATIC EMBRYOS FROM *MUSA* spp. cv EMBUL AND KOLIKUTTU (AAB GROUP)

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**Abstract:** The study compares somatic embryo development in two local cultivars of *Musa* (Embul and Kolikuttu - AAB group). Meristematic cells on basic Murashige and Skoog medium (MS) supplemented with 2,4-D (0.2 mg/L) and BAP (1.25 mg/L) results in direct induction of embryo cells without involvement of callus. A physical separation of embryogenic cells by a 'thick' wall is the first stage in somatic embryo development. The group of cells surrounded by a thick wall is then released as globules. Upon successive transfer to two liquid MS culture media, initially with ABA (1.25 mg/L), and secondly without any growth regulators, the globules developed into bipolar somatic embryos. There is no significant difference in somatic embryo formation in the two cultivars tested. The development pattern of the somatic embryos appears to be the same as in *Musa* cv Bluggoe (ABB) except for the time of proembryo initiation and formation.

**Key words:** Banana, *Musa* spp., somatic embryogenesis.

### INTRODUCTION

Somatic embryogenesis is the development of an embryo from somatic haploid or diploid cells without fusion of gametes. Somatic embryos possess both shoot and root meristems and are capable of forming complete plants. It is known that *in vitro* somatic embryogenesis offers great potential for crop improvement through the use of efficient cloning and genetic engineering techniques. Direct induction of somatic embryos is an important method of propagation and has been developed in many plants including crops such as rice.<sup>1,4</sup> It is a promising technique for plant multiplication due to high proliferation potential and minimal genetic instability.<sup>1,2,5</sup> In dicotyledons, formation of zygotic and somatic embryos progress through similar distinct stages such as globular, heart, torpedo and cotyledonary. However in monocotyledons, there are no distinct stages,<sup>6,7</sup> the initial stages are identified only as meristematic cell clusters.<sup>3,4,8-10</sup> But prominent stages thereafter appear to show varying degrees of specialization.<sup>11-13</sup> Somatic embryogenesis has advanced to such an extent that artificial seeds are available, the process has been automated and sorting of embryos of different stages is now possible.<sup>14-16</sup> The present study was performed on somatic embryogenesis in two local cultivars of *Musa* spp. cv Embul and Kolikuttu (AAB) both of which have a high demand locally and abroad.

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**Abbreviations:** 2,4 D - 2,4 Dichlorophenoxy Acetic acid, BAP - 6-Benzyl-Aminopurine, ABA - Abscisic Acid, FAA - Formaline: Acetic Acid - Alcohol ( 5:5:90)..