

## Embryogenesis in *Pennisetum pedicellatum* Trin. (Poaceae)

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**ABSTRACT:** Embryogenesis in *Pennisetum pedicellatum* Trin. has been studied. The first division of the zygote is transverse. Subsequent division in the proembryo is variable and can be grouped into three types according to the segmentation patterns. The shoot apex and the cotyledon are adjacent and derived from the terminal tier of the proembryo as in other monocotyledons. The structure of the mature embryo conforms to the panicoid type.

**KEY WORDS:** Embryogeny, *Pennisetum pedicellatum*, Poaceae.

### INTRODUCTION

*Pennisetum pedicellatum* Trin. belongs to the subfamily Panicoideae of Poaceae and is a polymorphic species with many chromosomal races (Chatterji, 1983; Chatterji and Pillai, 1970; Chatterji and Das, 1976; Joshi *et al.*, 1959; Nath and Swaminathan, 1957). It is cultivated in different states of India as a fodder and also as a soil binder (Mukherji and Chatterji, 1955; Mukherji and Prasad 1969; Sen and Ray, 1964, Whyte, 1964).

Embryological studies have shown *Pennisetum pedicellatum* to be an apomict, with apospory as the mechanism of reproduction. (Chatterji and Pillai, 1970; Kalyane and Chatterji, 1981; Narayan, 1962). However there has been no report on the developmental aspects of the embryo in this species. The present investigation therefore was undertaken to study the embryogenesis in *Pennisetum pedicellatum* Trin.

### MATERIALS AND METHODS

The material for the present study with a chromosome number of  $2n=36$  was collected near Fisheries college, Mangalore, Karnataka State. Inflorescences at different stages of development were fixed in FAA. The florets were dehydrated in butyl alcohol series and embedded in paraffin wax. Sections were cut at 10-12  $\mu\text{m}$  thickness and were stained in phenolic haematoxylin.

### RESULTS

The zygote is pyriform with dense cytoplasm at the apical end and sparse cytoplasm with a large vacuole at its basal region (Fig. 1). The first division of the zygote is transverse to produce a small terminal cell ca and a large basal cell cb (Fig. 2). The next division in the proembryo does not follow a set pattern and there appears to be three segmentation patterns.

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