

## INTRAFORMATIONAL CONGLOMERATE OF THE BANGANAPALLE FORMATION, KURNOOL GROUP

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THE Banganapalle Formation (5 to 70 m thick) is the basal lithostratigraphic unit of the Kurnool group occurring all along the western margin of the Kurnool basin as exposed at Banganapalle ( $15^{\circ}17'N$ :  $78^{\circ}14'E$ ), Gattimanikonda ( $15^{\circ}32'N$ :  $78^{\circ}11'E$ ), Lodipalle ( $15^{\circ}41'N$ :  $78^{\circ}4'E$ ), Bugganipalle ( $15^{\circ}28'16''N$ :  $78^{\circ}10'32''E$ ), Nagaluti ( $15^{\circ}47'30''N$ :  $78^{\circ}14'30''E$ ) and Urachintala ( $14^{\circ}57'N$ :  $78^{\circ}6'E$ ), etc. It is unconformably overlying different lithostratigraphic units of the lower Cuddapah Supergroup. The clastic unit of the Banganapalle Formation can be divided into the lower conglomerate and upper sandstone beds which end up as orthoquartzite, being transitional into each other. The lower conglomerate bed is always marked at its base by the occurrence of an intraformational conglomerate. This note gives a field description of the intraformational conglomerate and also attempts to discuss its mode of origin.

The lower conglomerate bed of the Banganapalle Formation generally starts with a metre thick intraformational conglomerate bed. This is characterised by the intraclasts of thin flat pebbles and the angular to sub-angular fragments of shale and chert (ranging in size between 1 cm to 5 cm) in a siliceous matrix. In view of the similarity between the composition of the particles (intraclasts) and the lithostratigraphic unit in which they occur this is termed as the intraformational conglomerate<sup>1</sup>.

This intraformational conglomerate of the Banganapalle Formation is found to unconformably overlie: (a) the Gulcheru Formation, at Ramallakota (Latitude  $15^{\circ}34'N$ : Longitude  $78^{\circ}E$ ) and Boduvanapalli ( $15^{\circ}39'30''N$ :  $78^{\circ}23'E$ ), (b) the Vempalle Formation at Narnur ( $15^{\circ}42'40''N$ :  $78^{\circ}5'E$ ) and west of Brahmanakotkur ( $15^{\circ}48'30''N$ :  $78^{\circ}12'15''E$ ) and (c) the Tadpatri Formation near Banganapalle ( $15^{\circ}17'N$ :  $78^{\circ}14'E$ ). It is worth noting that the intraformational conglomerate bed is also associated with sedimentary structures such as the current bedding, graded bedding and oscillatory ripple marks occurring within the Banganapalle Formation.

The intraformational conglomerates indicate either dessication environments or 'rip-up' clasting (due to sub-aqueous fragmentation), implying in both the cases the penconemporaneous erosion close to or at the site of deposition<sup>1</sup>. The absence of dessication environments is indicated by the lack of sedimentary

features such as mud cracks. Therefore the 'rip-up' clasting of the sediment in a shallow marine environment is the only alternative process, which could explain the fragmentation of the Banganapalle detritus as is also evidenced by the presence of ripple marks and current bedding within the Banganapalle Formation.

The sedimentation at the base of Kurnool Group was initiated under a transgressive impulse, as suggested by the occurrence of a very frugal and fine clastic material (shale) at the base of the Banganapalle Formation<sup>2</sup>. It appears that as the sedimentation progressed unchecked, the contemporaneous epeirogenic uplift of the provenance (Archeans and Lower Cuddapahs) immediately west and southwest of the Kurnool basin invoked complimentary negative oscillations on its continental slopes. Therefore the detritus so accumulated at or close to the hinge line slid along the continental slopes with attendant brecciation and limited transportation<sup>3</sup>. The brecciated detritus or the intraclasts so derived got embedded within the shaly matrix (formed earlier) to appear as the intraformational conglomerate bed at the base of the Banganapalle Formation. Thus the intraformational conglomerate bed of the Banganapalle Formation indicates a shortlived epeirogenic uplift almost contemporaneous with the commencement of the Kurnool sedimentation.

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## TWO NEW LEAF SPOT DISEASES OF MEDICINAL PLANTS

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NEW leaf spot diseases were observed in two medicinal plants, *Clerodendron siphonanthus*, and *Alangium lamarckii* in 1973-74, in the Botanical Garden of the Banaras Hindu University. *A. citri* from the infected leaves of *C. siphonanthus* and *A. humicola* from *A. lamarckii* were isolated on Czapek's agar medium at



25  $\pm$  1°C. The cultures of the fungi have been deposited in the Department of Botany, Banaras Hindu University and the diseased specimens in the Herbarium Cryptogamae Indicae Orientalis of the Division of Mycology and Plant Pathology, Indian Agricultural Research Institute, New Delhi. The symptoms of the diseases and the characters of the pathogens are described below:

*A. citri* Ellis and Pierce<sup>1,2</sup> produced brown, circular spots with sharp margins, 0.5–2.25 mm in diameter on the leaves of *C. siphonanthus*. The colonies on Czapek's agar effuse, zonate, grey. Conidiophores simple to branched, slender, 3–5  $\mu$ m-wide, olive-brown, septate. Conidia produced in chains, light to olive-brown, darkening with age, smooth to occasionally finely rough walled, of variable shape, mostly obclavate or oval, with or without terminal or lateral beak, slightly constricted at septa, muriform, with 0–7 transverse and 0–6 longitudinal septa, of variable size, 18–40  $\times$  8–14  $\mu$ m, blunt or rounded, hyaline or light brown, conidial chains simple to branched.

The leaves of *A. lamarckii* THW., infected with *A. humicola* Oudem, Achiv. Neerland<sup>3,4</sup> showed irregular to circular pustules with greyish-brown to blackish-brown margins. On Czapek's agar medium colonies at maturity blackish-green; conidiophores distinct, hyaline, septate, 3–5  $\mu$ m in diameter, racemosely branched, lageniform, at first hyaline later honey coloured dark, finally blackish-green, variable in size, 12–52  $\times$  8–16  $\mu$ m with 3–7 transverse septa muriform, ultimately becoming dense and very finely roughened, slight or no constriction at septa.

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## CYTOLOGICAL STUDIES IN *ANTHERICUM SUFFRUTICOSUM* (BAKER) MILNE REDHEAD

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GENUS *Anthericum* L. (Liliaceae) is closely related to *Chlorophytum* Ker.-Gawl. and is represented by a large number of species in Africa. Cytological data in

respect of this genus are rather meagre and a few species that have been investigated revealed that *Anthericum* tends to have eight as its basic chromosome number and most of the species are diploid. The present paper deals with the chromosome number, karyomorphology and meiotic behaviour in *A. suffruticosum* (Baker) Milne Redhead from tropical Africa.

*A. suffruticosum* is a perennial with erect or creeping thick rhizome which continues as an aerial stem for some distance and bears distichously arranged grass-like leaves. It sends out naked slender scapes from leaf axils which end in short raceme of 5–15 greenish-white flowers. In the glass house, it flowered many times since its introduction in 1977 but all the flowers withered and no fruit formation has been observed so far (figure 1).



Figure 1. *Anthericum suffruticosum* (Baker) Milne Redhead, habit ( $\times$  12).

Root-tip squashes revealed  $2n=32$  chromosomes (figure 2) which can be arranged in four sets of eight each. On the basis of their relative lengths and centromeric positions they can be classified as 4 long with submedian centromeres, 12 medium sized with median centromeres, 12 medium sized with subterminal centromeres and 4 short with median centromeres as well as having secondary constriction in their short arm.

The length difference between the longest (6.2  $\mu$ ) and the shortest chromosome (3.4  $\mu$ ) is not significant. Thus, the karyotype can be termed as rather