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# ULTRASTRUCTURE OF CONIDIUM AND CONIDIAL APPENDAGE IN *ROBILLARDA DEPAZEOIDES* (WELV. & CURR.) SACC.

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The ultrastructure and nuclear status of conidia and conidial appendage in *Robillarda depazeoides* (Welv. & Curr.) Sacc. are reported.

**Key Words** : Ultrastructures, cytology, appendage, *Robillarda depazeoides*.

Mature conidia bear appendages in large number of fungal species. and are used as diagnostic taxonomic characters for distinguishing genera and species. (Tassi, 1900; Subramanian & Ramakrishnan, 1954; Sutton, 1968; Nag Raj, 1978 and Punithalingam & Woodhams, 1983). This paper reports the ultrastructural and cytological studies of conidium and conidial apppendage in *Robillarda depazeoides* (Welv. & Curr.) Sacc.

## MATERIALS AND METHODS

HCl - Giemsa staining technique (Punithalingam, 1983) was used to study the cytology of conidium and conidial appendage. For transmission electron microscopy, material consisted of strips of agar (1 x 1 x 2 mm) cut from cultures containing conidiomata and conidia are fixed in 4% glutaraldehyde in 0.1 M phosphate buffer (pH = 7.2) for 2h. Three 0.1 M phosphate buffer rinses were followed by postfixation in 1% osmium tetroxide in 0.1 M phosphate buffer for 1h at 27°C. Dehydration in acetone was followed by embedding in Araldite. Gold interference colour sections (90-150 nm) were cut with glass knife and counter stained with uranyl acetate and lead citrate. Material was examined with Philips CM 10 electron microscope at 60 KV.

## RESULTS AND DISCUSSION

Transmission electron micrographs of longitudinal section through the conidium show a thin electron dense outer layer, thick electron transparent inner layer, prominent nucleus and lipid bodies (Figs 1, 2). At the apex of the conidium, both the inner and outer layer extend out to form the appendage (Fig. 3). During initial stage of development, there is a protoplasmic continuity with the conidium since the nucleus is able to enter the base of the appendage (Figs 5,7). At maturity, the protoplasmic continuity that existed between the appendage and body of the conidium is interrupted by the laying down of a septum at the base of the appendage (Fig. 4)

The cytological study shows that each conidium is tri-nucleate of which two nuclei are present in the body of the conidium while single nucleus is present in the bulbous part of the appendage (Figs 5,6) which has three branches.

The interesting finding of this investigation is that the appendage is nucleate. This indicates that the appendage is modified cell unit which is specialized for some purpose during which the nucleus and the cytoplasm are retained within the appendage. The presence of nucleus indicates that the appendage has the ability to propagate the species. But this fact is yet to be established by microdissection and culture work to see whether the appendage can produce germ tube. However, these appendages are capable of helping the conidium in dissemination.

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## REFERENCES

Nag Raj T R 1978 Genera coelomycetarum XIV *Allelochaeta, Basilocula, Ceuthosira, Microgloeum, Neobarclaya, Polynema, Pycnidiocheeta,* and *Xenodomus*. *Can J Bot* **56** 686-707.

Punithalingam E 1983 The nuclei of *Macrophomina phaseolina* (Tassi) Goid. *Nova Hedwigia* **30** 339 151-198.

Subramanian C V & K Ramakrishnan 1954 *Alpakesa*, a new genus of the Sphaeropsidales. *J Indian bot soc* **33** 203-205.

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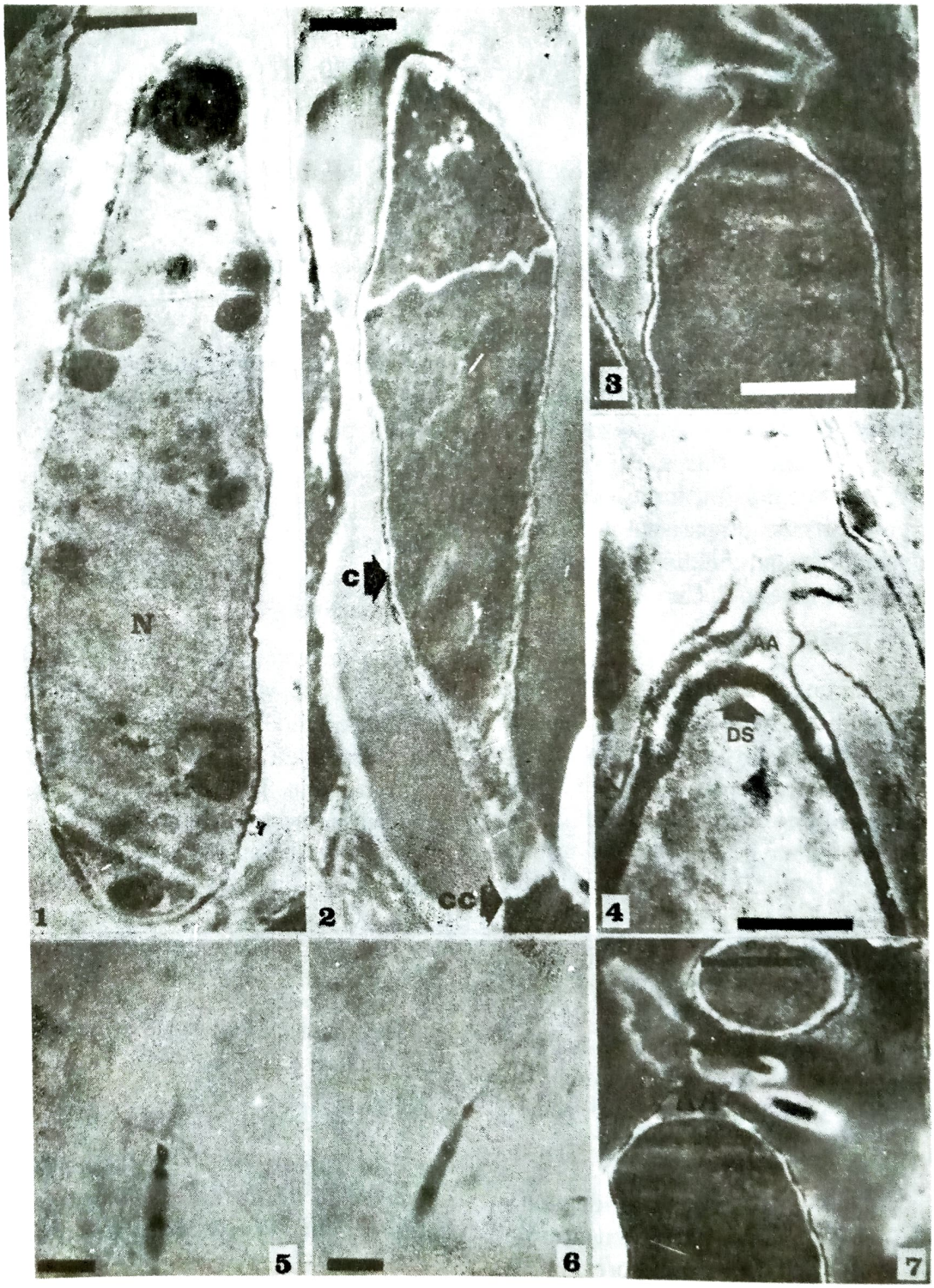


Figures 1-7. Fig. 1. Vertical section of the conidium showing the nucleus (N) and lipid bodies (L) (Bar = 1 µm) , Fig. 2. Section of the conidium (C) showing detachment from the conidiogenous cell (CC) (Bar = 2 µm), Figs 3,4. Vertical sections of conidia showing the extension of the conidial wall into the apical appendage (AA). Note the delimiting septum (DS) in between the conidium and the appendage (Bars = 1 µm), Figs 5, 6. Light photo micrographs of HCl - Giemsa stained conidia of *Robillarda depazeoides*., Fig. 5. Vertical section of conidium showing the migration of nucleus into the bulbous region of conidial appendage (Bar = 10 µm) , Fig. 6. Binucleate conidium with nucleate appendage (Bar = 10 µm). Fig. 7. Section of the conidium showing the presence of protoplasm in the apical appendage (AA) (Bar = 1 µm).

Sutton B C 1968 *Kellermania* and its generic segregates. *Can J Bot* **46** 181-196.

Tassi F 1900 *Bartalinia* Fl. Tass. Nuovo genere di sphaeropsidaceae. *Boll Lab Orto bot Siena* **3** 3-5.