

## RESEARCH ARTICLE

**Diversity of *Arthrimum* from Melghat Forest, Amravati (MS) India**

Hande DV, Suradkar KP and Kadu SR

Department of Botany, Shri Shivaji Science College, Amravati (MS), India.

Manuscript details:	ABSTRACT
<p>Date of publication 18.10.2014</p> <p>Available online on <a href="http://www.ijlsci.in">http://www.ijlsci.in</a></p> <p>ISSN: 2320-964X (Online) ISSN: 2320-7817 (Print)</p> <p><b>Editor: Dr. Arvind Chavhan</b></p>	<p>The present paper deals with investigation on the fungi from forest area of Melghat of Amravati District (MS). During the survey in forest area, four fungal species representing single genus, <i>Arthrimum</i> has been collected from dead and decaying parts of different hosts including <i>Dendroclamus strictus</i> Nees., <i>Cajanus cajan</i> (L) Millsp., <i>Gossypium hirsutum</i> L. <i>Bambusa arundinacea</i> (Retz) Willd and their morphotaxonomy was studied. The species were identified on the basis of morphological characters and structure of fruiting bodies. Taxonomic details illustrated in the paper.</p> <p><b>Keyword:</b> <i>Arthrimum</i>, morphotaxonomy, Melghat Forest</p>
<p><b>Cite this article as:</b> Hande DV, Suradkar KP, Kadu SR (2014) Diversity of <i>Arthrimum</i> from Melghat Forest, Amravati (M.S.) India, <i>Int. J. of Life Sciences</i>, Special Issue A2: 99-101.</p> <p><b>Copyright:</b> © Author(s), This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derives License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p>	<p><b>INTRODUCTION</b></p> <p>The fungal organisms of diverse groups are known to grow and proliferate in variable climatic environment (Bilgrami <i>et al.</i>, 1991). The anamorphic fungi reproduced asexually whereas Hyphomycetes produce conidia directly from vegetative structures or on distinct conidiophores (Kirk <i>et al.</i>, 2001). The genus <i>Arthrimum</i> is reported ecologically diverse and wide spread, commonly found as a saprobe on leaves, stems and roots of a range of different plant substrates (Agut and Calvo, 2004). It was found growing on dead and decaying plant parts from Melghat forest of Amravati District. (Subhedar <i>et al.</i>, 2010, Dharkar <i>et al.</i>, 2011; Hande, 2012 Hande and Hiwarale, 2013 and Hande <i>et al.</i>, 2014) and reported new and rare to Maharashtra. In present survey, four species of <i>Arthrimum</i> and its diversity has been reported from Melghat forest. The collected material has been studied in respect of morphology, taxonomy and identified with relevant literature (Subramaniam, 1971, Barnett &amp; Hunter, 1972).</p> <p><b>MATERIALS AND METHODS</b></p> <p>Decaying leaves and stems of different plants were collected at Melghat forest. Samples were wrapped in butter paper and brought to the laboratory for examination. They were cut in small pieces and incubated in plastic containers lined with moist filter paper. Slides were prepared using lacto-phenol cotton-blue and observed. Morphological characteristics and relevant literature has been used for fungal identification (Subramaniam, 1971).</p>

## RESULTS AND DISCUSSION

### *Arthrinium caricicola* Kunze ex Fries

Colonies dark brown, round, oval or irregular in shape, composed of closely packed conidiophores arising from superficial mat of mycelium. Mycelium composed of closely interwoven hyphae, hyaline when young, finally brown septate, conidiophores simple, slender, divided into several hyaline cells by dark brown septa. Conidia 1-celled, pale to dark brown.

### *Arthrinium hydei* Crous ( Fig 1.1-1.2)

Mycelium smooth, hyaline to pale brown, branched, septate, 2-3  $\mu\text{m}$  diameter. Conidiophores pale brown smooth, cylindrical, septate, branched, 22-34  $\times$  3-5  $\mu\text{m}$ . Conidiogenous cell aggregated in clusters on hyphae, smooth, hyaline, doliiform. Conidia unicelled, brown, globose to lenticular with pale equatorial slit 10-22  $\mu\text{m}$  diameter in side view.

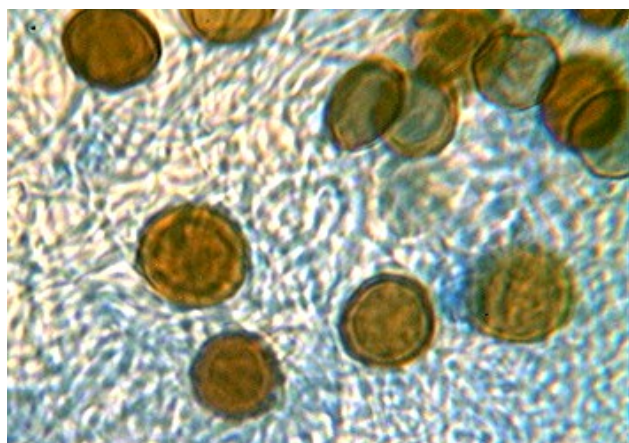


Fig 1.1: *Arthrinium hydei* Mycelium with conidia

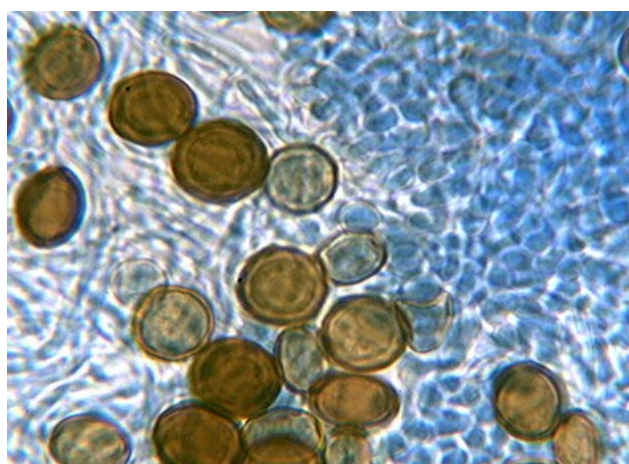


Fig 1.2: Conidiogenous cells and conidia

### *Arthrinium marii* Larrondo & Calvo ( Fig 1.3-1.4)

Mycelium smooth, hyaline, branched, septate upto 1.5-3  $\mu\text{m}$  in diameter, conidiophores reduced to conidiogenous cells. Conidiogenous cells aggregated on hyphae, basauxic, macronematous, mononematous, arising singly from ampulliform conidiophores, usually brown in color, 6-10  $\times$  2.5-4  $\mu\text{m}$ . Conidia solitary, lateral or terminal, smooth, brown, globose to elongate, ellipsoid in surface view 7-10  $\mu\text{m}$  in diameter with pale equatorial slit, 5-6  $\mu\text{m}$  diameter in side view.

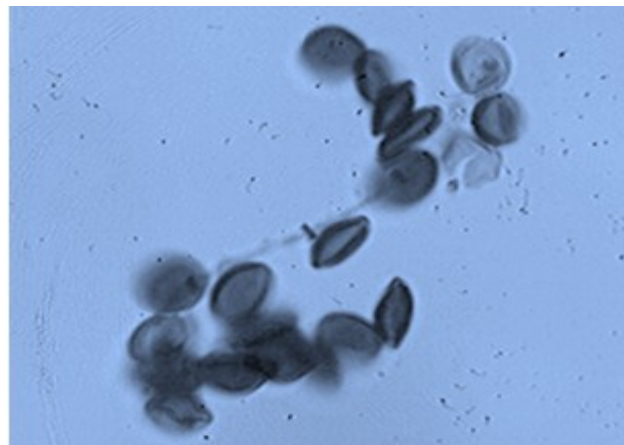


Fig1.3 : *Arthrinium marii* Mycelium with conidia

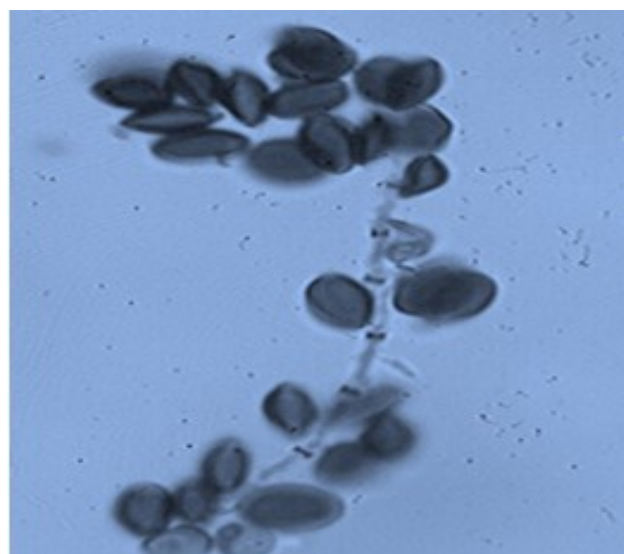


Fig 1.4: Broad septate mycelium with conidia

### *Arthrinium phaeospermum* (Corda) Ellis

Colonies dark brown to greenish, round, oval or irregular in shape. Mycelium hyaline to pale brown, smooth hyphae, 3-4  $\mu\text{m}$  in diameter. Conidiophores are cylindrical, narrow, erect or flexuous, straight, simple, smooth, hyaline 5-12  $\times$  3-5  $\mu\text{m}$  thick, dark brown with transverse septa 48-120  $\mu\text{m}$  long, 2-4.5  $\mu\text{m}$  in diameter between septa, basal cell somewhat flattened and

**Table 1 : Comparison between species of *Arthrrium*.**

Species	Colony character(color)	Mycelium	Conidiophores	Conidia
<i>A. caricicola</i> Kunze ex Fries	Black,, pulvinate	2-3 µm diameter	150×4 µm	36- 54×9-12µm
<i>A. hydei</i> Crous	Olive white with patches of grey to black	2-3 µm diameter	22-34 × 3-5 µm	10-22 µm
<i>A. marii</i> Larrondo & Calvo	Whitish- black to olivaceous grey	1.5 – 3 µm in diameter	6-10× 2.5×4 µm	7-10 ×5-6 µm
<i>A. phaeospermum</i> (Corda) Ellis	Dark brown to greenish in color	3-4 µm in diameter	5-12×3-5 µm	10-16 × 4-7µm

round or irregular in shape. Conidia sessile or sometimes borne on short hyaline pegs along the sides of the conidiophores, which are somewhat flattened, lemon shape in surface view, triangular in side view but outer edge is curve and the corners round, brown pale at tips, smooth 10-16 µm long, 4-7 µm wide in surface view.

Subramaniam CV (1971) yphomycetes. I. C. A. R. Sci. Monogr., New Delhi.

Subhedar AW, Hande DV, Dharkar N.(2006) Effect of some rhizosphere fungal flora on productivity of some crop plants Asian journal of Agronomy.5 (2):239-247.

© 2014 | Published by IJLSCI

## CONCLUSION

The survey aims to establish the diversity and distribution of *Arthrrium* sp. associated with plant debris from Melghat Forest of Amravati district of Maharashtra and this is the first report on diversity of *Arthrrium* species from this region.

## REFERENCES

- Agut M, Calvo MA (2004) *In vitro* conidial germination in *Arthrrium aureum* and *Arthrrium phaeospermum*. *Mycopathologia*, 157:363-367.
- Barnett H, Hanter BB (1972) : Illustrated Genera of Imperfect fungi. III. Ed., Burgess Publishing Co., Minnesota.
- Bilgrami KS, Jamaluddin, Rizwi MA (1991) Fungi of India, Part – III, List and References. Today and Tomorrow Publications, New Delhi, pp. 798.
- Dharkar N, Hande D, Shahezad MA (2011) *Ajrekarella asetosa*– A new Coelomycete From Vidarbha, India. *KAVAK*, 37&38 : 3-5.
- Hande DV (2012) Dematiatious Hyphomycetes Fungi From Amravati MS. *Journal of Ecobiotechnology*,4(2) : 172-174.
- Hande DV, Hiwarale SV (2013) Diversity of *Xylaria* Species from Amravati Region, Amravati, MS, India. *International Research Journal of Biological Sciences*, 2(1), 1-6.
- Hande DV, Kadu SR, Suradkar KP (2014) A Rare Myxomycetes *Macbrideola* from Amravati, Maharashtra. *Int. J. of life Sciences*, 2 (1):93-95.
- Krik SD, Cannon PF, David J, Stalpars JA( 2001) Ainsworth & Bisby's Dictionary of the Fungi. CAB International, Wallingford, UK.