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RESEARCH ARTICLE

MORPHOCHEMICAL STUDIES OF TWO SPECIES OF *APLOSPRELLA* Speg. (=*HAPLOSPORELA* Speg.)

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ABSTRACT

The present paper deals with morphological and chemical studies of two species of *Aplosporella* Speg. (=*Haplosporella* Speg.)The species under study found to be morphologically and biochemically distinct. The species were collected on different hosts of same angiospermic family on comparison with the known species it treated as new species viz, *Aplosporella leucocephala* sp.nov. on *Leucaena leucocephala* (Lamk)de wit. And *Aplosporella pithecolobiella sp.nov on Pithecolobium dulce* (Roxb.)

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INTRODUCTION

Though morphchemical study is an interesting but debatable phenomenon, which helps to understand the diversity and conservation. It is very difficult to identify new species on the basis of morphological characters only hence some author advocate host specificity as one of the important character for speciation. In the present study chemical characters have been used to support speciation (Agrawal & Dhamij *et al*., 1978; Harborn, 1984; Iyer *et al*., 2001; Joshi & Patwardan, 1972; Kherda *et al*, 2004; Kumar *et al*.,2011).

MATERIALS AND METHODS

Morphological characters were studied by taking free hand sections and mounting in lactophenol microscopic observation reveled some distinctly different characters Ainsworth *et al*., 1973; Bilgrami *et al* .,1991, Jamaluddin *et al*., 2004; Sarbhoy *et al*., 1996). To study the chemical characters the said species were cultured on Potato - Dextrose Agar. For chemical studies fully grown cultures were hydrolysed, residue was collected in 10% isopropyl alcohol. The chemical studies were done with two dimentional paper chromatography the solvent systems used were n-butanol : acetic acid : water (4:1:1 w/v) and phenol:water (3:1 w/v)for amino acid.For carbohydrate n-butanol : acetic acid : water (4:1:5 w/v)was used. n-butanol : formic acid : water (4:1:5 w/v) system was used for organic acid. The indicator used were ninhydrine for studying different amino acids. Likewise aniline hydrogenpthalate used for carbohydrate and bromothymol blue for organic acids. On development, the RF values were compared with the standard run simultaneously. The specimen were deposited in Ajrekar Mycological Herbarium (AMH) Agharkar Research Institute, Pune 411 004. *Aplosporella leucocephala sp.nov* AMH No.9033 (Holotype), (Fig.1.a,b,c,d,e,f,g,h) *Aplosporella pithecolobiella* sp. nov AMH No.9034 (Holotype), Fig.2..a,b,c,d,e,f,g,h)

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RESULTS AND DISCUSSION

On comparison with known species the present collection were found to be different evident from size of stroma, locule and conidia (Table 1). The species under study were different chemically also as is evident from Table (2,3,4). The species were separated on the presence of certain chemicals like Glutamic acid,L-Hydroxyproline, L-Cystine Hcl, Tryptophan Arginine, Glycine, L-Ornithine, L-Threonine, Sucrose, Rhamnose, Tartaric acid, Citric acid, Succinic acid.

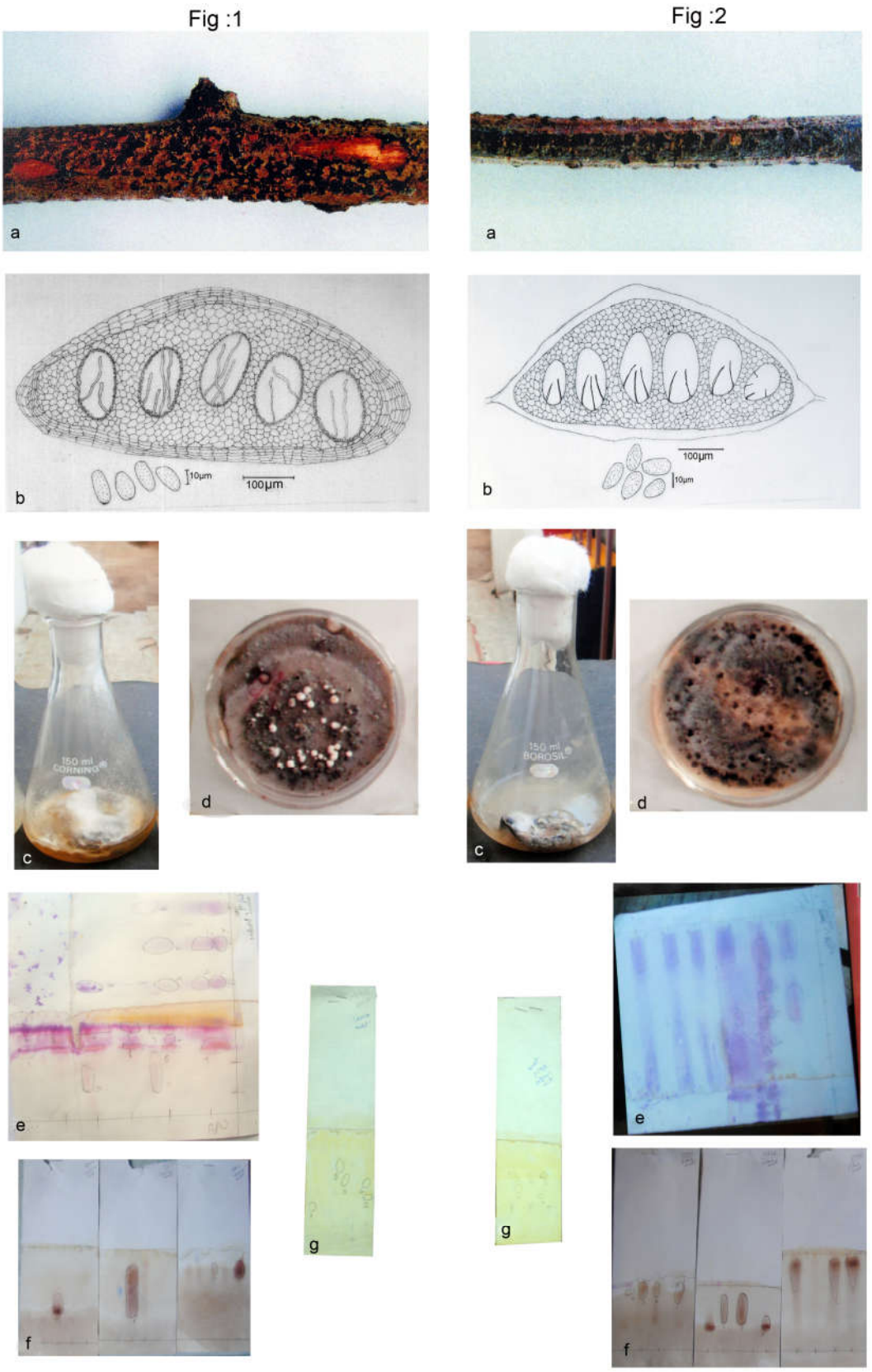

Illustration: - Morphochemical studies of two species of *Aplosporella* Speg. (=*Haplosporella* Speg.)

Fig. 1. *Aplosporella leucocephala* sp. nov, a=habit;b = pycnostroma (100 µm), conidia (10 µm); c=culture on PDA broth medium;d=growth of *Aplosprella leucocephala* on Potato Dextrose Agar medium;e=chromatogram of amino acid; f= chromatogram of carbohydrate;g= chromatogram of organic acid

Fig. 2. *Aplosporella pithecolobiella* sp. nov, a=habit;b = pycnostroma (100 µm), conidia (10 µm); c=culture on PDA broth medium;d=growth of *Aplosporella pithecolobiella* on Potato Dextrose Agar medium;e=chromatogram of amino acid; f= chromatogram of carbohydrate;g= chromatogram of organic acid

Table 1. Comparison of *Aplosporella* species

Species	Stroma	Locule	Conidia	Reference
***A.acacie* Tilak &Rao**	80-100x65- 100µm	_	15-19x8-11 µm	Tilak & Rao (1964)
***A. subhyalinae* Anahosur**	1.7mm	140-180x160-210 µm	18-22x4-6 µm	Anahosur (1970)
***A. beumontiana* Ahamad**	0.6mm	150-200x80-120 µm	13-20x10-11.5 µm	Pande (1995)
***A. clerodendri* Ahamad**	500-800 µm in diam up to 500 µm in heigh	130-350x80-130 µm	12-16x8-10 µm	Pande (1995)
***A.ipomoeae* Ahamad**	0.5-1.0 µm	172-344 µm	11.4-22.8x11.4-19.0 µm	Pande (1995)
***A.prunicola* Damm &Crous**	400-800x200-350 µm	60-80x150-175 µm	19-22x10-12 µm	Damm & Crous (2007)
***A.lycopersie* Kaste**	64-164x44 -108 µm	240-432x84-560 µm	19-24x12-20 µm	Kaste (2014)
***A.leucocephala* Sp.nov**	275.4-382.0x480-740 µm	76-229.5 x76-306 µm	7.6-22.8x7.6-11.4 µm	Understudy
***A.pithecolobiella* Sp.nov**	200-350x320-800 µm	46.0-64.0x46.0-120 µm	11.4-22.8x4.6-11.4 µm	Understudy

Table 2. Biochemical studies of *Aplosporella S*pecies (Amino acid)

Amino acid	*A.leucocephala*	*A.pithecolobiella*
Histidine	+	+
Tyrosine	_	_
Aspartic acid	+	+
Glutamic acid		+
Dl-Norleucine	+	+
L-Hydroxyproline	+	_
L-Cystine Hcl	_	+
Arginine	+	_
Tryptophan		+
Glycine	+	_
L-Ornithine	+	_
L-Threonine		+
Alanine	+	+

Table 3. Biochemical studies of *Aplosporella S*pecies (Carbohydrate)

Carbohydrates	*A.leucocephala*	*A.pithecolobiella*
Arabinose	-	-
Raffinose	-	-
Fructose	-	-
Glucose	-	-
Sucrose	-	+
Rhamnose	+	+
Lactose	-	-
Xylose	-	-

Table 4. Biochemical studies of *Aplosporella S*pecies (Organic acid)

Organic acid	*A.leucocephala*	*A.pithecolobiella*
Lactic acid	_	_
Tartaric acid	+	_
Citric acid	_	+
Succinic acid	+	_
Malic acid	_	_

+=Present **- =Absent**

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