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Research article

Three new combinations in *Acmella* (Asteraceae: Heliantheae)

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Abstract: Three new combinations are proposed: *Acmella vazhachalensis* (Sheela) Reshmi & Rajalakshmi, *A. ghoshinis* (Sheela) Reshmi & Rajalakshmi and *A. tetralobata* (Reshmi & Rajalakshmi) Reshmi & Rajalakshmi, based on taxa originally described in *Spilanthes.*
Keywords: *Acmella* - Pappus - Chromosome number - Kerala - India.

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INTRODUCTION

Spilanthes was first described by Jacquin (1760) with two species, *Spilanthes incipida* and *S. urens*. Richard (1807) described *Acmella* as a genus of five species that differ from species of *Spilanthes* in having ray florets and lack of pappus. Cassini (1822) suggested that *Acmella* might be treated better as a section within *Spilanthes*. De Candolle (1836) followed Cassini's suggestion and recognized two sections, namely sect. *Salivaria* DC. and sect. *Acmella* (Rich.) DC. Moore (1907) in his revision of the genus *Spilanthes* described section *Salivaria* with 13 species and section *Acmella*, with 26 species. Jansen (1981) provided convincing evidences for the recognition of *Acmella* and *Spilanthes* as distinct genera based on morphological, chromosomal and molecular evidences. He characterized *Spilanthes* with stiff awned pappus, monomorphic achenes, sessile leaves, discoid heads and white to purplish-white corolla. On the other hands, *Acmella* consists of soft pappus bristles, dimorphic achenes, petiolate leaves, radiate and discoid heads and usually orange-yellow to yellow or occasionally white corolla. He (Jansen 1985) transferred some of the taxa from *Spilanthes* to *Acmella* and finally recognized 30 species and 9 infraspecific taxa in *Acmella*.

While revising the genus *Spilanthes* in India, Sivarajan & Remesan (1987) overlooked the detailed morphological and chromosomal evidences provided by Jansen (1981) and merely followed Moore (1907). After the revision of Sivarajan and Remesan, detailed taxonomical revision was not reported for *Spilanthes*. Still some of the Indian treatises (Ramsewak *et al.* 1999, Saraf & Dixit 2002, Thomas 2011, Shefali Arora *et al.* 2011, Kishan *et al.* 2011, Veda *et al*. 2012, Anuradha Sharma *et al.* 2012) have followed the broader concept of the genus *Spilanthes*.

RESULTS AND DISCUSSION

Three taxa endemic to Kerala, India were recently reported; include *Spilanthes vazhachalensis* Sheela, *S. ghoshinis* Sheela and *S. tetralobata* Reshmi & Rajalakshmi (2007, 2010, 2014) following Moore (1907). However detailed taxonomic study revealed that these three species are shared the characters of *Acmella* rather than *Spilanthes*. Jansen described a base number of 12 or 13 for *Acmella*, and 16 for *Spilanthes* (Jansen & Stuessy 1980, Jansen 1981). Cytological study of these three taxa, conducted by Reshmi & Rajalakshmi (2015) also proved the basic chromosome number, x = 13. Therefore, in the light of available chromosome data (Reshmi & Rajalakshmi 2015) and evaluation of morphological characters these taxa should be included in *Acmella*, requiring the following new combinations,

1. *Acmella ghoshinis* (Sheela) Reshmi & Rajalakshmi *comb. nov.* **(Fig.1 A& B)**
Spilanthes ghoshinis, Sheela, JETB 34(4): 798–800; 2010. — Type: India, Kerala, Ernakulam, Desom, Aluva, 25.02.2009, *Sheela 00615* (Holo: KFRI!).

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2. *Acmella tetralobata* (Reshmi & Rajalakshmi) Reshmi & Rajalakshmi, *comb. nov.* **(Fig.1 C& D)**
Spilanthes tetralobata Reshmi & Rajalakshmi, IJAR 2(11): 1092–1097; 2014. — Type: India, Kerala, Ernakulam district, Koothattukulam, 28 m, 11.09.2012, *G. R. Reshmi 7106* (Holo TBGT! Iso KUBH!).

3. *Acmella vazhachalensis* (Sheela) Reshmi & Rajalakshmi *comb. nov.* **(Fig. 1 E &F)**
Spilanthes vazhachalensis, Sheela, JETB 31(2): 474–477; 2007. — Type: India; Kerala, Trichur District, Vazhachal, 25.04.1991, *Sheela 00400* (Holo: KFRI!).

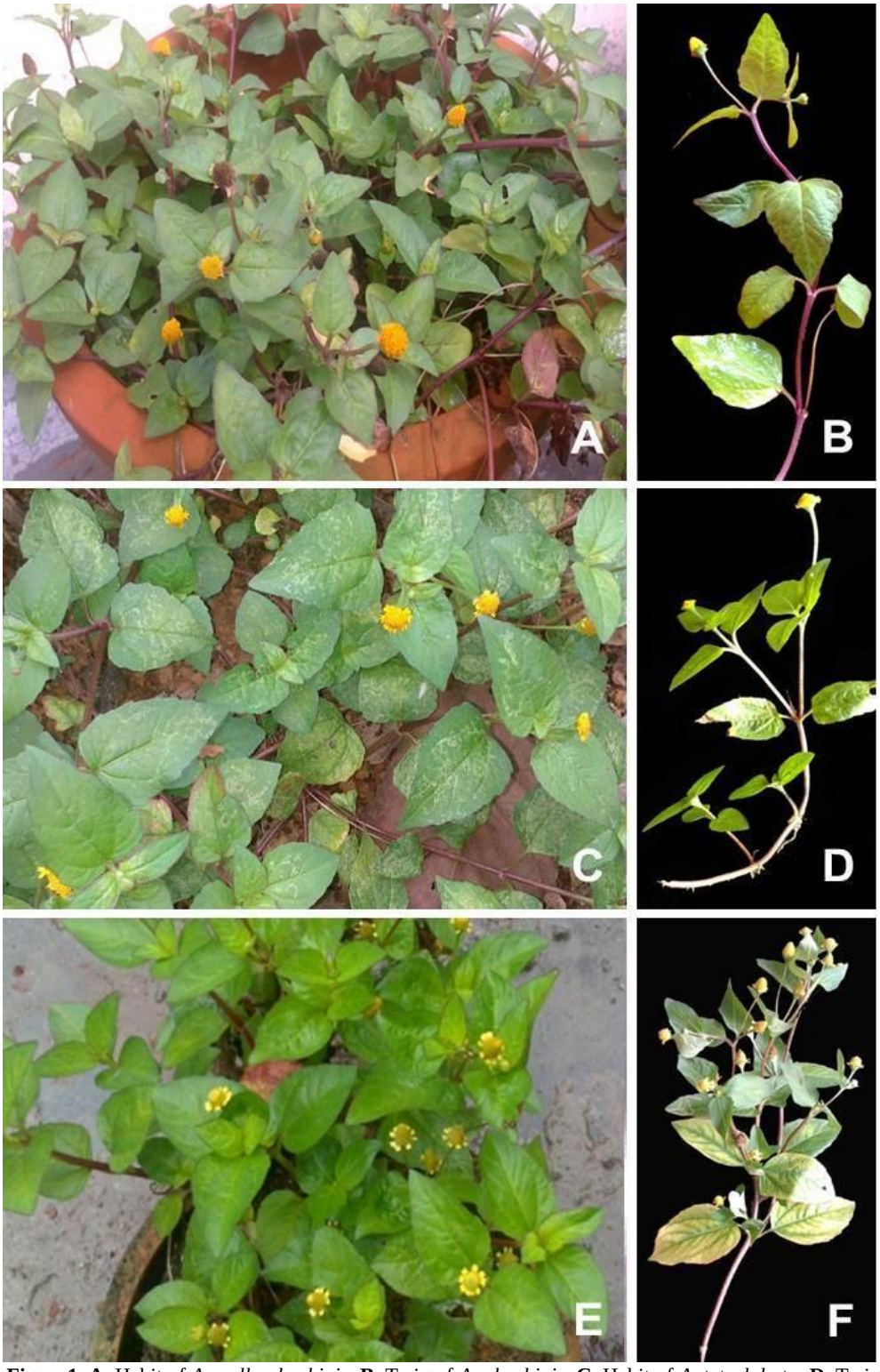

Figure1. A, Habit of *Acmella ghoshinis*; **B,** Twig of *A. ghoshinis*; **C,** Habit of *A. tetralobata*; **D,** Twig of *A. tetralobata*; **E,** Habit of *A. vazhachalensis*; **F,** Twig of *A. vazhachalensis*.

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