

THREE NEW *ALCHEMILLA* L. (ROSACEAE) RECORDS FROM TURKEY

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Abstract

Alchemilla L., is a critical and taxonomically difficult group with its numerous and variable forms presents an interesting object for taxonomical studies which have been undertaken since the end of the previous century. Three *Alchemilla* L. (Rosaceae) species (*Alchemilla fissa* Günther & Schummel, *Alchemilla haraldi* Juz. and *Alchemilla pseudomollis* Juz.) from north-east Anatolia are described as new records for Turkey.

Introduction

A critical and taxonomically difficult group, the genus *Alchemilla* L., which is distributed mainly in the Holarctic but occurs also on the mountains of East and South Africa as well as Madagaskar, South India, Sri Lanka and Java, comprises of more than 1000 species (Izmailow, 1981; Fröhner, 1995).

The genus *Alchemilla* with its numerous and variable forms presents an interesting object for taxonomical studies which have been undertaken since the end of the previous century. Buser (1894) was among the first who was interested in the genus and described numerous forms of *Alchemilla*, giving them the taxonomical status of species. The taxonomic tradition initiated by Buser (1894) was continued by botanists such as Juzepczuk (1941), Rothmaler (1944), Pawlowski (1972), Hayirlioglu-Ayaz (2000).

In the flora of Turkey, the genus is represented by some 50 species belonging to three subsections and six series of Sect. *Alchemilla* Rothm. (Pawlowski & Walters, 1972). Most of them are found in north-east Anatolia. Extensive studies on Turkish *Alchemilla* during the past 7 years have revealed 15 new species (Kalheber, 1994; Hayirlioglu-Ayaz & Beyazoglu, 1997a; Hayirlioglu-Ayaz & Kalheber, 2002; Menemen & Hamzaoglu, 2002a,b) and 9 new records (Kalheber, 1994; Hayirlioglu-Ayaz & Beyazoglu, 1997b; 2002). Consequently, the number of *Alchemilla* species in Turkey has reached to 74.

In this paper, three more *Alchemilla* species are added as new records for Turkey, in the following systematic arrangement:

Section: *Alchemilla* Rothm.

Subsection: *Calycanthum* Rothm.

Series: *Elatae* Rotm.

1. *Alchemilla haraldi* Juz.
2. *Alchemilla pseudomollis* Juz.

Series: *Calycinae* Buser

3. *Alchemilla fissa* Günther & Schummel

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Materials and Methods

The study is based on herbarium specimens collected in north-east Anatolia in July and August 1994-2003. Descriptions were made with the aid of the Flora of Turkey (Hayirlioglu-Ayaz, 2000), Juzepczuk (1941), Walters & Pawlowski (1968) and Fröhner (1969). The morphological drawings were made with a drawing attachment. Specimens were deposited at the Herbarium at Karadeniz Technical University, Department of Biology (KTUB).

Results

***Alchemilla fissa* Günther & Schummel**, Sched. Cent. Siles. Exsicc. 9. no.2 (1819), (Figs. 1a, 4b & 7c).

Perennial, green plant. Stem 17-25 cm, delicate, ascending and completely glabrous. Radical leaves 5.5-7.3 cm wide, reniform, wide sinus; 5-7 lobed; lobes long, with a wide rounded or subtruncate apex, with long U-shaped incisions; teeth 6-7 and very large. Upper surface of leaves glabrous, lower surface very sparsely hairy on the main veins, sometimes also on the basal lobes. Petioles of radical leaves 5.5-11 cm long, completely glabrous. Inflorescence small. Flowers 3-4.5 mm wide, yellow; hypanthia 1 mm glabrous; sepals and epicalyx glabrous. Flowering July. Banks of mountains stream and on wet rocks.

Described from Pyrenees, Alps and Sudeten mountains.

A9 Artvin: Ardanuç, Yalnızçam Dağları (together with *Picea orientalis*, some species of *Rhododendron* and others), grassy stream banks, 2000 m, 12. vii. 2003, *Inceer 181*, KTUB.

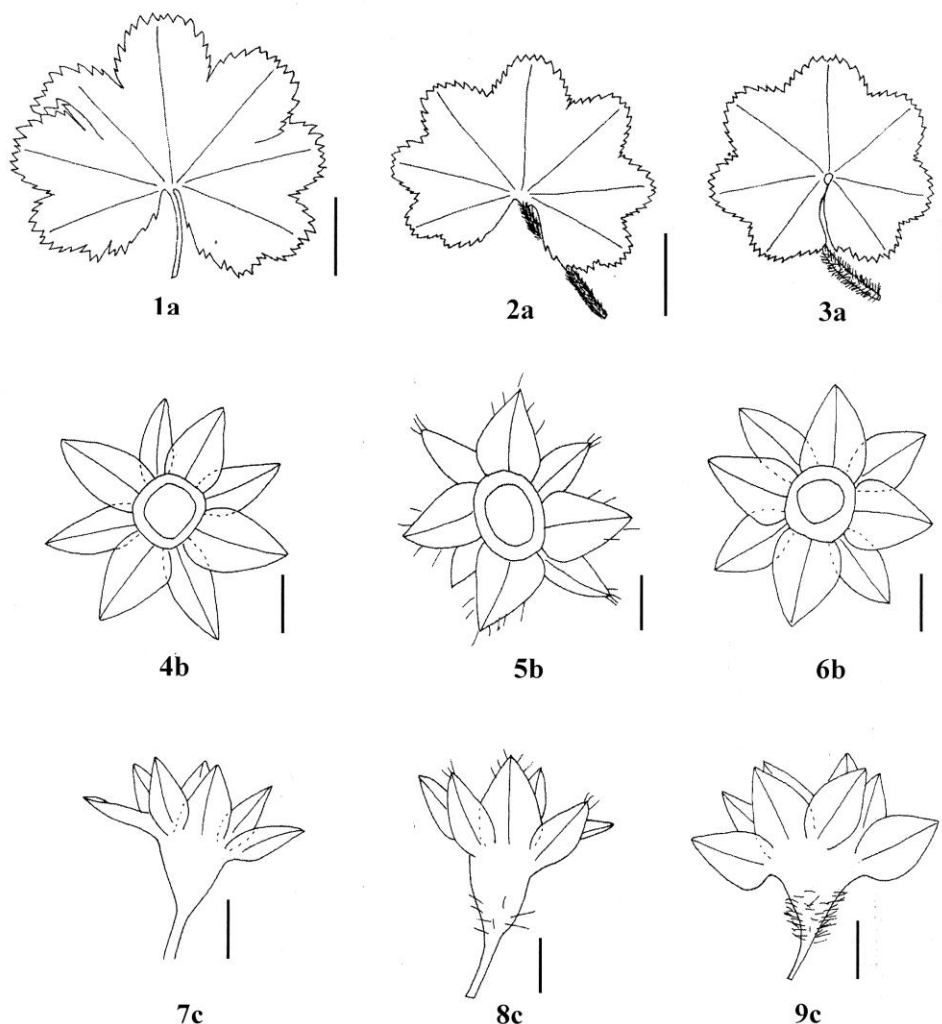
A. fissa is similar to *A. dura*, but differs in its stems delicately completely glabrous with deeply long incisions, petioles always glabrous, cauline leaves distinctly lobed and flowers small.

***Alchemilla haraldi* Juz.** In: *Acta Inst. Acad. Sc. URSS, SER I, fasc.1* (1933) 130 (Figs. 2a, 5b & 8c).

Perennial, glaucescent-green plant. Stem 20-25 cm, firm, densely adpressed hairy, sparsely hairy in inflorescence. Radical leaves 3.5-7 cm wide, reniform, open sinus, slightly undulate or nearly flat, 7-9 lobed; lobes usually short, arcuate or semi-orbicular, with or without inconspicuous incision, with 7-10 triangular or semiovate, acute obtuse teeth. Leaves adpressed hairy above along margin and wrinkles and rather densely hairy beneath on the entire surface. Petioles 5-12 cm long, densely adpressed hairy. Cauline leaves large, broadly reniform or semi-orbicular. Inflorescence rather narrow. Flowers 3-4 mm wide, yellowish green; hypanthia obconoid, 1.2 mm, glabrous or in lower flowers with solitary hairs at base; sepals about as long as hypanthium, broadly ovate, sparsely adpressed hairy; epicalyx slightly shorter and narrower than sepals, with solitary hairs at apex or glabrous. Pedicels glabrous. Flowering July. Alpine meadows.

Type:[Leningrad]. Described from Malaya Iremel Mountain, along the road to Insalovo.

A8 Rize: İkizdere, above the village of Anzer, alpine meadows, stream banks (together with some species of *Carex*, *Achillea*, *Tripleurospermum*, *Bromus*, among others) 2150 m, 19.vii.1995, *Hayirlioglu-Ayaz 207*, KTUB.



Figs. 1-9. Leaf and flower morphology in *Alchemilla*. 1, 4, 7: *A. fissa*. 2, 5, 8: *A. haraldi*. 3, 6, 9: *A. pseudomollis*. a: Leaf, b: Top view of flower, c: Side view of flower. Scale bars: 1-3= 1 cm, 4-9= 1 mm.

A. haraldi is similar to *A. sciadophylla* Rothm., but differ in its adpressed hairy upper leaf surface only along margins and folds, sinus narrow, sepals sparsely hairy and epicalyx lobes solitary hairs at apex.

***Alchemilla pseudomollis* Juz.** Sp. n. In: *Addenda IX*, p. 475 (Figs 3a, 6b & 9c).

Perennial, glaucescent-green plant. Stem 12-17.5 cm, robust, erect-ascending, densely patent hairy throughout, more sparsely so above. Radical leaves 4-5.5 cm wide, reniform or orbicular reniform, 7-9 lobed; lobes short, arcuate or semiorbicular, teeth 6-7, large and obtuse. Leaves hairy above, rather densely beneath. Petioles 5.5- 8.5 cm long, densely patent hairy. Cauline leaves well-developed. Inflorescence narrow and few flowered. Flowers 3.5-4 mm wide, yellow; hypanthia obconoid, 0.7 mm, usually patent

hairy; sepals obtuse and glabrous; the lower of pedicels often hairy, the upper completely glabrous. Flowering July. Subalpine meadows, pastures, shrubby formations and banks of mountainous streams.

Type: [Leningrad]. Described from Aibgi.

A7 Trabzon: Zigana Dağı, on the road of Kadirga (together with some species of *Euphorbia*, *Malva sylvestris*, among others), 1750 m, 17.vii.1995, *Hayirlioglu-Ayaz 195*, KTUB.

A. pseudomollis is similar to *A. oxysepala*, but differs in the following: smaller dimensions of the entire plant, stems densely hairy to upper most branches, inflorescence narrow, few-flowered and pubescence of pedicels.

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