STUDIES IN THE FAMILY GENTIANACEAE: 
THE GENUS ALOITIS RAFIN. FROM PAKISTAN AND KASHMIR

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Abstract

The genus Aloitis Rafin. is recognized from Pakistan. Six new combinations are proposed: A. falconeri (Clarke) Omer, Qaiser & Ali; A. maddeni (Clarke) Omer, Qaiser & Ali; A. moorcroftiana (Wall. ex G. Don) Omer, Qaiser & Ali; A. umbellata (M. Bieb.) Omer, Qaiser & Ali A. holostoeidos (Pritchard) Omer, Qaiser & Ali and A. stoliczkai (Clarke) Omer, Qaiser & Ali.

Introduction

The genus Aloitis Rafin., was described by Rafinesque-Schmaltz (1837) on the basis of pentamerous flowers, mucronate corolla, with 5 dorsifixed or versatile stamens, stipitate ovary and short style. The genus has long been considered as congeneric with Gentiana L. However, Löve & Löve (1986) resurrected the genus Aloitis Rafin. The genus Aloitis Rafin. differs from Gentiana L. (s. str.) on the basis of non-plicate flowers and epipetalous nectaries. This genus can also readily be distinguished from the related genera i.e., Gentianella Moench (1794) and Gentianopsis Ma (1951) on the basis of unequal calyx lobes which are not distichously arranged, pentamerous flowers, paired nectaries at the base of each corolla-lobe and naked corolla-throat.

During the detailed studies of the genus Gentiana L., (s.1.) from Pakistan, certain taxa were encountered which were earlier placed either under Gentiana L., (s.1.) or Gentianella Moench (s.1.). But a critical examination revealed that these taxa could not be placed under either of the genera. These taxa are being accommodated in the genus Aloitis Rafin., resulting in six new combinations. A key to the species is also given. In each case, alongwith the synonymy, information about the specimens studied, the type specimens, distribution and flowering period is also presented.

ALOITIS
Rafin., Fl. tellur. 3: 21. 1837.

Erect, annual-perennial glabrous herbs. Leaves basal as well as cauline; basal forming rosette; cauline opposite, loosely arranged, sessile. Inflorescence axillary – terminal; 2-3 flowered cymes. Flowers zygomorphic, long-pedicellate, pentamerous. Calyx cylindric – campanulate, 5-lobed, lobes irregularly unequal, never distichous. Corolla 5-lobed,
campanulate, variously coloured: pink, purple, blue or white; plicae or subsidiary lobes of the corolla absent, naked inside (without any limbriae or ciliae), margin of lobes entire. Stamens alternating and corresponding with the petals. Anthers versatile, filaments adnate to the corolla-tube in the middle or below. Nectaries epipetalous at the base of the corolla-tube, double the number of petals. Ovary superior, unilocular with numerous ovules and parietal placentation with a distinct gynophore; stigmas 2, prominent, sessile or subsessile. Capsule stipitate, ± exserted. Seeds elliptic - oval, striately reticulated or with subsmooth surface.

A genus of 8-10 species, distributed in the high and cold mountains of Europe, Asia and America.

Key to the species:

1. +Calyx-tube longer than the lobes.
   -Calyx-tube shorter than the lobes.

2. +Largest calyx-lobes ± equal to the length of corolla-tube.
   -All calyx-lobes ± smaller than the corolla tube.

3. +Plants not exceeding 5(-7) cm in height. Basal leaves 0.3-0.5 x 0.1-0.3 cm, spatulate, ovate or lanceolate. Inflorescence not umbellate.
   -Plants more than 8 cm in height. Basal leaves 0.8-2.5 x 0.5-1.2 cm, obovate - oblancoate. Inflorescence umbellate cymes.

   -Stigma subsessile; style ± prominent; calyx-lobes unequal in all respects.

5. +Corolla-lobes distinctly mucronate; pink in colour; stamens reaching the corolla-lobes sinuses. Margin of calyx lobes scabrid.

   1. *A. falconeri*  
   2  
   3  
   4  
   5. *A. holosieoides*  
   4. *A. umbellata*  
   3. *A. moorcroftiana*  
   5  
   6. *A. stoliczkai*
—Corolla-lobes obtuse, blue in colour; stamens exserted. Margin of calyx lobes not scabrid.

2. *A. maddeni*

1. *Aloitis falconeri* (Clarke) Omer, Qaiser & Ali, Comb. nov. (Fig.1, A-F).


Type: In coll. *Falconer* Prope Puddum Himalayae boreali - occidentalis ad 12000 ped. alt., *Stoliczka* (CAL).


Distribution: Kashmir (Himalaya).

Fl. Per.: July-August.

2. *Aloitis maddenii* (Clarke) Omer, Qaiser & Ali, Comb. nov.

*Gentiana moorcroftiana* Wall. ex G. Don var. *maddenii* Clarke in Hook. f., Fl. Brit. Ind. 4: 108. 1883; Stewart, l.c. 557; *Gentianella maddenii* (Clarke) Airy Shaw in Hook., l.c. P1. 35: t. 3431, 1943.

Syntypes: Kumaon, alt. 10-12000 ft., ibid. *Madden* (K); *Davidson* (K!); Tibet, alt. 15000 ft., (Pitu?), *Strachey* & *Winterbottom* (K).


Distribution: Himalaya (Kashmir-Nepal).

Fl. Per.: August - October.
Fig. 1. *Alois falcatori*: A, Habit; B, Flower; C, Calyx; D, Corolla; E, Stamen; F, Ovary.
3. *Aloitis moorcroftiana* (Wall. ex G. Don) Omer, Qaiser & Ali, Comb. nov.

*Gentiana moorcroftiana* Wall. ex G. Don, Gen. Syst. 4: 182, 1837; Stewart, l.c. 556; *Gentianella moorcroftiana* (Wall. ex G. Don) Airy Shaw in Hook., Ic. Pl. 35: t. 3431. 1943.

Type: In itenere versus Ladak, Tibet, *Moorcroft* Wall. Cat. no. 4390, (K-W; IDC. 7394-11).

Specimens examined: Kashmir: Lilam Patu rages et champs, 3000 m., 18-25.8.1953, F. Schmid 628 (E); Ladak, Kangi Nulla below Kangi, 12500', in river bed, flrs, purplish blue, throat whitish, 5.9.1931, Walter Koelz 2812 (E, NY); Ladak, 10-12000 ped, T. Thomson s.n. (NY); Kangi La, Ladak, 1931, Walter Koelz A-31 (NY); Dras, Ladak Road, 10000 ft. 29.8.1940, R.R. Stewart 21164 (NY); Sind valley, 8-9000 ft., 19.8.1893, J.F. Duthie 13653 (K); Sonamarg, by the river, 8-9000 ft., 17.8.1893, J.F. Duthie 13599 (K); Locality not known, Dr. J.L. Stewart s.n. (E); Sonamarg ± 9000', 1.9.1917, R.R. Stewart 3550 1/2 (NY).


F1. Per.: July-September. Fr. Per.: August-September.

A variable species in habit, general branching pattern, and type of inflorescence branching. In these characters it resembles *A. maddeni* from which it can be separated on the basis of corolla-size (less than 2.0 cm broad on expansion).

4. *Aloitis umbellata* (M. Bieb.) Omer, Qaiser & Ali, Comb. nov. (Fig. 2, A-F).


Type: Habitat in ditionis Caucasi kubensis alpestribus circa Chinalug (LE).

Specimens examined: Chirpal: Vedinkot, W. of Baroghil Pass, 10000 ft., in *Populus* thickets on damp ground, 22.7.1958, J.D.A. Stainton 2967 (E); Baltistan: Shyok watershed, ± 9000', 16.8.1940, R.R. Stewart s.n. (RAW); Thalle La, 10000 ft, pale blue, 13.8.1940, R.R. Stewart 20627 (RAW).

Distribution: Central Asia, Iran and Pakistan.

F1. Per.: July-August.
Fig. 2. *Aloitis umbellata*: A, Habit; B, Flower; C&C1, Calyx; D, Corolla; E, Stamen; F, Ovary.
Closely allied to *A. aurea* (L.) Löve et Löve and *A. stoliczkai* (Clarke) Omer, Qaiser & Ali from which it differs on the basis of obtuse-rounded bases of basal leaves, dissimilar scabrid calyx-teeth and obtuse sinuses. Whereas in *A. stoliczkai* (Clarke) Omer, Qaiser & Ali, the apices of basal leaves are acute, calyx-teeth are almost similar, densely scabrid and sinuses are acute. The corolla in *A. aurea* (L.) Löve et Löve is 6-8 mm long; whereas it is 8-11 mm long in *A. umbellata* (M. Bieb.) Omer, Qaiser & Ali.

5. *Aloitis holostoeides* (Pritchard) Omer, Qaiser & Ali, Comb. nov.


Type: Turkey, Nigde, in humidis fontium prope Bulgar Magara, substrato dioritico, 2438 m, 8.1853, *Kotschy 285* (Hol K; Iso. WU).


Distribution: Turkey and Pakistan.

The distribution of this taxon is rather strange, known from Turkey and Pakistan only. Is it really a case of disjunct distribution or hitherto not collected from Iran and Afghanistan?

Fl. Per.: August.

6. *Aloitis stoliczkai* (Clarke) Omer, Qaiser & Ali, Comb. nov.


Type: In Himalaya boreali-occidentali ad 14000 ped. alt., *Stoliczka* (CAL.).


Distribution: Central Asia, Afghanistan, China and Pakistan (Himalaya & Karakorum).
Fl. Per.: August.

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References


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