

# ACER MAZANDARANICUM (ACERACEAE), A NEW SPECIES FROM NORTHERN IRAN

T. Amini, H. Zare & M. Assadi

Received: 31.08.2008. Accepted for publication: 15.10.2008

Amini, T., Zare, H. & Assadi, M. 2008 12 31: *Acer mazandaranicum* (Aceraceae), a new species from northern Iran. -Iran. J. Bot. 14 (2): 81-86. Tehran.

*Acer mazandaranicum* is described as a new species from the south of Sari forests in north of Iran, It is well characterized by the following characters such as having thick and leathery leaves, lobes entire or undulate, terminal leaves usually with three lobes, corymbs hanging with very long peduncles and pedicels, samaras with totally overlapping wings, the bark is glossy grayish white and without cracks. It has also different period of seed abundant production (seed great mass year is between 2-3 years) comparing to the others. The new species is a relative of *Acer hyrcanum* Fisch. & C. A. Mey. which is compared with.

Tayebeh Amini, tayebehamini@yahoo.com, and Habib Zare, habib.zare@gmail.com (correspondence), Research Center of Agriculture and Natural Resources of Mazandaran, Botanical Garden of Nowshahr, Nowshahr, Iran. Mostafa Assadi, Research Institute of Forests and Rangelands, P. O. Box 13185-116. Tehran, Iran.

Key words. *Acer mazandaranicum*, Aceraceae, new species, Flora, Taxonomy, Iran.

یک گونه جدید و منحصر به فرد از جنس افرا به نام *Acer mazandaranicum* (Aceraceae) از جنگلهای ساری، شمال

ایران

طیبه امینی، مربی پژوهش مرکز تحقیقات کشاورزی و منابع طبیعی استان مازندران.

حبیب زارع، مربی پژوهش مرکز تحقیقات کشاورزی و منابع طبیعی استان مازندران.

مصطفی اسدی، استاد پژوهش مؤسسه تحقیقات جنگلها و مراتع کشور.

گونه *Acer mazandaranicum* به عنوان گونه جدیدی از شمال ایران نامگذاری و شرح داده می‌شود. این گونه با داشتن ویژگی‌های زیر از سایر افراهای ایران متفاوت است. برگ‌ها چرمی و ضخیم، حاشیه پنجه‌های برگ صاف یا موج، نوک پنجه‌ها به سه پنجه فرعی کوچک تقسیم شده، دو پنجه کناری خیلی کوچک یا دندان‌های، برگ‌های شاخه‌های زایا و انتهایی درخت سه پنجه‌ای، گل آذین دیهیمی آویزان با دم گل آذین و دم‌گل‌های خیلی بلند، میوه با بال‌هایی که در انتها یکدیگر را به صورت ضربدر قطع می‌کنند، پوست تنه صاف، سفید مایل به خاکستری و بدون شیار و همچنین داشتن دوره بذرآوری فراوان ۲ تا ۳ ساله. گونه جدید با گونه *Acer hyrcanum* قرابت دارد، بنابراین با آن مقایسه می‌شود.

## Introduction

In the course of collecting plant specimens for the herbarium of Nowshahr Botanical Garden and revising the *Acearaceae* family for the treatment of Flora of Iran (Assadi 1989), in a field trip to Dodangeh forests (south of Sari) tall trees of *Acer* species having wonderful characters were observed. Further studies revealed that this plant is different from the other known species in north of Iran, i.e. *Acer cappadocicum* Gled., *A. hyrcanum* Fisch. & C. A. Mey. *A. velutinum* Boiss. *A. platanoides* L., *A. campestre* L. *A. monspessulanum* L. subsp. *ibericum* (M. B.) Yaltrik (Murray 1969).

Specimens of it were collected during 2002 to 2007, it also, showed that they have different great mass years from the others (van Gelderen & et al. 1995). This plant is described as a new species here.

## New species

***Acer mazandaranicum* Amini, Zare & Assadi, sp. nov.**

Arbor usque ad 45 m alta, cortice nitida, dilute grisea, integra; rami glabri, lentibus frequentibus, hornotini rubri, vetustiores atrocinerascentes. Folia coriacea,

Table 1. Comparison of characters of *Acer mazandaranicum*, *A. cappadocicum*, *A. hyrcanum* and *A. velutinum* Boiss.

<i>Acer mazandaranicum</i>	<i>Acer hyrcanum</i>	<i>Acer velutinum</i>	<i>Acer cappadocicum</i>
Tree, up to 35-45 m high, up to 110 cm stem in diameter.	Tree, up to 17 m high, up to 40 cm in diameter.	Tree, up to 40 m high, up to 150 cm in diameter.	Tree, up to 25 m high, up to 65 cm in diameter.
Leaves thick and leathery, leaf lobes entire or undulate, terminal leaves usually with three lobes, 7-11x8-14 cm, petiole thick with no latex.	Leaves none leathery, leaf lobes distinctly dentate, terminal leaves usually with five lobes, 3-9x11-13/5 cm, and petioles thin with no latex.	Leaves slightly thick, with large and triangle lobes, margin of lobes dentate and acute, 9-25x10-25 cm, petiole long with no latex.	Leaves thin, with 5-7 obovate and caudate lobes, margin entire, 4-10x6-16 cm, petiole thin with latex.
Inflorescence reddish at first, corymbs pendulum, peduncle thick and 60-70 mm long, pedicel 70-90 mm long, wings of samaras overlap and cross-like, seeds compressed, inflorescence with or none samaras remaining on the tree until the year after.	Inflorescence yellow-reddish at first, corymbs erect but then rather pendulum, peduncle thin and short or sessile, pedicel 18-24 mm, wings usually parallel or diverging at an acute angle (wide angle), seeds not compressed, inflorescence falling after dispersal of seeds.	inflorescence with abundant flowers, yellowish, corymb erect, pubescent, peduncle thick and rather short 2-4.5cm long, pedicel 5-40 mm, angle between samaras right, seeds globose, loculus pubescent.	Inflorescence yellow-green at first, corymb erect, glabrous, peduncle thin 15-22 mm, pedicel 16-23 mm, samaras obtuse to non-obtuse, seeds compressed, loculus glabrescent.
Bark of branches grayish-white; bark in old trees glossy and non-ridged, light gray.	Bark of branches grayish-brown, in old trees not glossy with shallow or sketchy ridge, gray-brown to dark gray.	Bark of mature trees slightly glossy to rigged, deformed, light gray to bright cuprous.	Bark of mature trees glossy with very shallow linear ridge, dark gray with brownish thin strip.
Seed great mass year is 2-3 years.	Seed great mass every year.	Seed great mass every year.	Seed great mass every year.

opposita; petioli 4-12 cm longi, glabri; laminae 7-11x8-14 cm, palmatae, 5-lobatae, supra pallide virides et glabrescentes, subtus flovo-virentes, venis exceptis glabrae; venae rubrae vel dilute brunneae; lobus tribus intermediis a lateribus longioribus, marginibus lateralibus parallelis; lobi laterales brevissimi vel dentiformes. Petiolus crassus, 8.5-15(19) cm longus, glabrescens, non lactifer. Corymbi penduli; pedunculi 6-7 cm longi, pediceli 7-9 cm longi. Samarae 15-35x6-12 mm, rubrae demum brunneae, conniventes, cruciatae, interdum trisamarae; loculi ± compressi, elongati, glabri.

*Typus.* Iran, Mazandaran, 60-65 km S. Sari, Dodangeh, Sangdeh, Ashek forest, Vang- Zanoon, 1570 m, Zare & Amini 10390 (holotypus TARI); Dodangeh, Partkola village, Sangenoo forest, 1600 m, Zare & Amini 10391; Dodangeh, Partkola village, Ezhgheh forest, 1900 m, Zare & Amini 10392.

Tree up to 45 m height; bark glossy grayish white with no ridges even in age, very similar to *Fagus orientalis* Lipsky. Branches glabrous, reddish when young, later

dark brown, with abundant lenses. Leaves leathery, opposite, 7-11x8-14 cm, palmate, 5-lobed, pale green and glabrescent in upper surface, pale greenish yellow in lower surface, glabrous except on the axillary veins or mainly along the veins; veins red to pale brown with sparse short hairs; three middle lobes longer than the lateral lobes, with parallel side margins, entire, toothed or lobed at the margin; lateral lobes very short or more often tooth-like; petiole 8.5-15 (19) cm long, thick, glabrescent. Buds fusiform, with light brown scales; scales reddish at the margin. Inflorescence reddish at first, then yellow-brown in mature, appearing after leaves. Corymbs pendulous, 14-15 cm long, glabrous; peduncle rather thick, 6-7 cm long; pedicels 7-9 cm long. Samaras 15-35x6-12 mm, reddish at first, dark brown at mature, glabrous, overlap at the ends and cross-like, rarely with three wings; loculus ± compressed, long, glabrous. Seeds great mass period production in between 2-3 years.

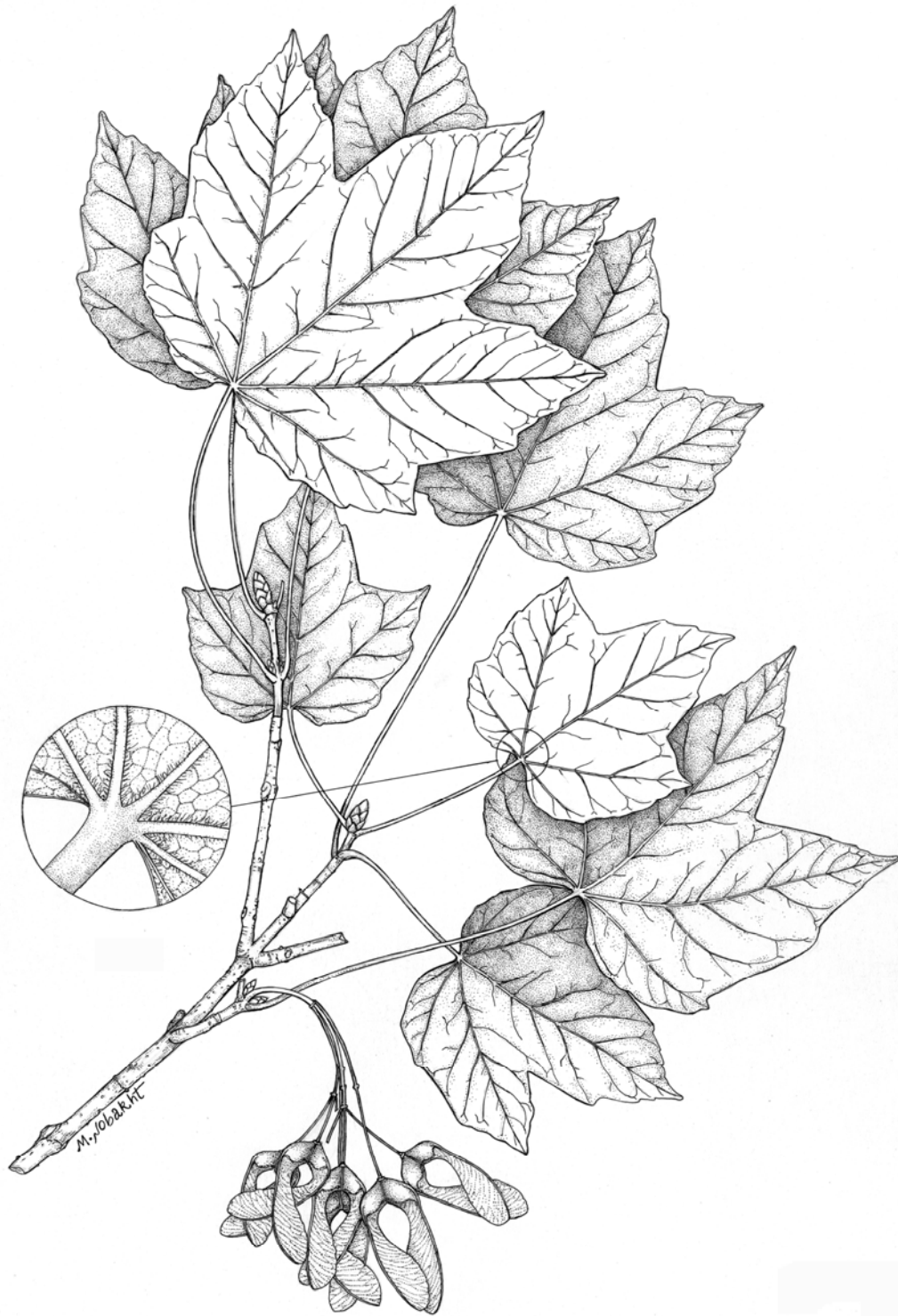


Fig. 1. *Acer mazandaranicum* (x0.5).



Fig. 2. Trunk of *Acer mazandaranicum*.



Fig. 3. Trunk of *Acer hyrcanum*.

The new species is rather related to *Acer hyrcanum* Fisch. C. A. Mey. which is a well known species in N. Iran. They are compared together and also with some more species occurring in the area in table 1.

It grows in the area mixed with *Acer cappadocicum* Gled. and *Acer velutinum* Boiss. in more or less a dense forests at an lower altitudes but never with *Acer hyrcanum*.

*Acer hyrcanum* is distributed in highland parts in open forests and to escape competition with tall trees. Its seedlings can not tolerate the shade of trees contrary to the seedlings of *Acer mazandaranicum*.

### Ecology of the new species

*Acer mazandaranicum* grows on northern slopes and humid and foggy forests, at an altitude 1500-1900 m. above sea level. It grows on humid sites with deep humus on brown forest soil. It is a fast growing tree especially on wet and well drained soil with non heavy texture (Ejtehad et al. 2007). The species is durable to shade of trees in above layer especially in juvenile stage. It is a large tree with spreading crown. Seed abundant production period of trees differs from the other *Acer* species occurring in Hyrcanian forest and adjacent areas. Usually, it is distributed along with *Fagus orientalis* Lipsky, and it can be found in the pure community of *Fagus* or mixed *Fagus* and *Carpinus betulus* L. species. Some of the other trees seen with *Acer mazandaranicum* are *Sorbus torminalis* (L.) Crantz, *Tilia platyphyllos* Scop., *Ulmus glabra* Hudson. Herbaceous layers consisting of following forbs and ferns: *Mateuccia struthiopteris* (L.) Wither, *Dryopteris filix-mas* L., *Athyrium filix-femina* (L.) Roth., *Polystichum aculeatum* (L.) Roth., *Polystichum*

*lonchitis* (L.) Roth., *Vicia crocea* (Desf.) B. Fedtsch., *Campanula latifolia* L., *Lapsana communis* L., *Thlaspi hastulatum* (Stev.) ex DC., *Sedum lenkoranicum* Grossh., *Cardamine impatiens* L. and *Platanthera bifolia* (L.) L. C. Rich.

### Acknowledgment

We wish to thank Mr. Ghahraman Rezaee proficient expert of Forests and Rangelands Organization for preparation of specimens from tall trees and Mrs. Nobakht the artist in the Central Herbarium of Iran (TARI) for drawing of the illustration.

### References

- Assadi, M. 1989: Plan of the Flora of Iran. -Tehran.
- Browicz, K., & Zielinski, J., 1982: Chorology of Trees and Shrubs in SW. Asia and adjacent regions vol. 1: 17-24. -Polish Science Publishers.
- Browicz, K., & Zielinski, J., 1982: Chorology of Trees and Shrubs in SW. Asia and adjacent regions vol. 1: 17-24. -Polish Science Publishers.
- Ejtehad, H., Zare, H., Habashi, H. and Atashgahi, Z. 2007: Species diversity of vegetation types and their relationships with physiographic and soil variables: A case study in highland forest of Dodangeh, Sari, Mazandaran, report of project research of University of Ferdowsi, Mashhad, p 30.
- van Gelderen, D. M., De Jong, P. C. & Oterdoom, H. J. 1995: Maple of the World. -Timber Press, Portland, Oregon, p 458.
- Murray, E., 1969: Aceraceae in K. H. Rechinger Flora Iranica, no 61. -Graz.