A SHORT NOTE ON THE GENUS NASTURTIUM R. Br. (CRUCIFERAE) AND A NEW HYBRID STATE FROM THIS GENUS FOR IRAN

A. Naqinezhad


The genus Nasturtium with two species, N. officinale and N. microphyllum, distributes in the wet and damp places of Iran. These two species make a hybrid state, Nasturtium x sterile, with intermediate morphological and chromosomal features. This hybrid state is reported for the first time in Iran. Ecology and general distribution of the hybrid and its parent taxa are discussed. Moreover N. microphyllum is reported from more localities comparing to the one locality in Flora Iranica.

Alireza Naqinezhad, Department of Botany, Faculty of Biology, College of Science, University of Tehran, Tehran, Iran.

Key words. Cruciferae, Nasturtium, N. x sterile, north of Iran, new hybrid.

INTRODUCTION

Nasturtium R. Br., Cardamine L., Rorippa Scop. have been known as aquatic genera of the family Cruciferae in Iran (Hedg, 1968). These genera are thought to be closely related and are placed together in the tribe Arabideae DC. (Al-Shehbaz, 1988). Nasturtium which is often reduced to a synonymy of Rorippa, is recognized as a distinct genus with five species in the world (Al-Shehbaz & Price, 1998). Moreover, the results of molecular analysis do not support the incorporation of Nasturtium within Rorippa (Franzke, et al. 1998). The most common and widespread species of the genus Nasturtium are N. officinale R. Br. and N. microphyllum (Boenn.) Rechb. Both of which are native to Eurasia and northern Africa and widely naturalized elsewhere (Al-Shehbaz & Price, 1998). The first species is more common and is considered as watercress of commerce. Although Nasturtium officinale grows on the wet habitats in most parts of Iran but N. microphyllum was known as a species that confined in one counted locality (Bakhtiari, Belu) (Hedge, 1968). From the few years to now, several other localities were found by the author in Gilan and Mazandaran provinces and therefore added to last distributional range of N. microphyllum. There is a hybrid taxon between N. officinale and N. microphyllum in the areas that two species meet. This hybridization event is reported for the first time in north of Iran.

MATERIALS AND METHODS

Specimens of Nasturtium in Herbaria W, TUH, IRAN, TARI (abbreviation according to Holmgren et al. 1990) were studied. The genus Nasturtium contains reticulate seeds. The counting of areolae number on each side of seed surface was carried out by stereomicroscope (Nikon: SMZ-1 with 30 x magnification). Also two digital photos from seed surface was prepared with using of this stereomicroscope.

RESULTS AND DISCUSSION

Nasturtium microphyllum in North of Iran

Materials examined. Gilan province, Lahijan, Hassanalideh, near to Amirkelayeh wetland, -26 m, 20.6.2001, Naqinezhad, 27873-TUH!; Gilan: Lahijan, Saharkhiz, near to the Pasgah, -25 m, 27.5.2000, Naqinezhad, 27278-TUH!.
Barbarea plantaginea microphyllum was wrongly determined under Darreh-Abshar, 2450 m, 6.6.1974, Iranshahr-30600E) A specimen in Herbarium IRAN (Bakhtiari: Semirum, in herbaria TARI and IRAN. Author has not ever seen any specimens of this species in herbaria TARI and IRAN.

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The fruits of Nasturtium officinale are shorter and wider compared with N. microphyllum. N. officinale has coarsely reticulate seeds with less than 130 areolae per side in contrast to the moderately to minutely reticulate seeds with less than 130 areolae per side found in N. microphyllum. Moreover, N. officinale is a tetraploid species (2n=4x=32) while N. microphyllum is octoploid (2n=8x=64). The hybrid between these two species is either fertile or sterile. Fully fertile hybrids contain 100-130. Because of non-seed fruits or unripe seeds, the counting of seed areolae was impossible in my specimens confirms the upper results. The seeds of N. officinale contain 40-50 areolae per side while that of N. microphyllum contain 100-130. Because of non-seed fruits or unripe seeds, the counting of seed areolae was impossible in N. x sterile specimens.

The hybrid widely occurs in ditches and small brooks with running water but also in ponds with a high fluctuation of water level in Central Europe (Bleeker & Hurka 1997). Most of the locations inhabited by N. x sterile were created by man in connection with landscape melioration. The formation and persistence of N. x sterile is favoured by human activities. On the British Isles the hybrid has traditionally been cultivated as a crop plant (brown cress). N. x sterile is more vigorous than the octoploids and is quicker in establishing itself from cutting (Manton, 1935) These vegetative capabilities should provide this hybrid with a fitness advantage in ditches regularly managed (Bleeker et al. 1999). Nasturtium x sterile grows within irrigation canals or small brooks within ricefields and forest edges where are influenced by human or domestic animals.

**Acknowledgment**

Thank due to Dr. Ihsan Al-Shehbaz, Senior curator of Missouri Botanical Garden, America, for confirmation of Nasturtium x sterile. Author is also grateful to curators of herbaria W (Dr. E. Vitek), TARI (Dr. M. Assadi), IRAN (Mrs. F. Aghabeigi), TUH (Dr. A. Ghahreman) for their helps during the work on the specimens of these herbaria.

**References**


Fig. 1. Nasturtium x sterile: habit (a), fruiting branch (b) [photo from 30833-TUH]; Nasturtium microphyllum: habit (c), seed (d) [photo from 27278-TUH]; Nasturtium officinale: seed (e).