PUTATIVE HYBRID BETWEEN NORTH AMERICAN SPECIES OF *ASCLEPIAS* (APOCYNACEAE, ASCLEPIADOIDEAE) IN BELARUS

M. A. Dzhus
Belarusian State University, 4 Nezavisimosti Ave., 220030, Minsk, Belarus
(*dzhus.maxim@gmail.com*)

As currently circumscribed *Asclepias* is a genus of Apocynaceae family that include 130–140 species, native to North, Central and South America (Woodson, 1954). Moreover, up to 250 species from Africa sometimes were included in *Asclepias*, but this is not supported by modern phylogenetic studies (Fishbein et al., 2011). Nearly 10 species of *Asclepias* are cultivated as ornamentals and sometimes escape from culture in Europe. The most widespread and invasive species in some South, Central and East European countries is *A. syriaca* L., whereas *A. curassavica* L. and *A. incarnata* L. have been recorded as casual or locally naturalized aliens in various regions of Europe (Gudžinskas & Petrulaitis, 2019). In 2019 Gudžinskas and Petrulaitis are reported from Lithuania new to Europe alien species – *Asclepias speciosa* Torr., that is similar to invasive *A. syriaca* and was misidentified as the latter for the long time (since 1962) (Gudžinskas & Petrulaitis, 2019). In Belarus only one species – *A. syriaca* was mentioned as a cultivated and potentially invasive alien (Dubovik et al., 2020; Kozlovskaja, 1998). *Asclepias incarnata*, *A. tuberosa* L. and probably a few other species began to be cultivated as ornamentals just in recent years.

During field seasons of 2019–2020 putative hybrid between North American species of *Asclepias* was discovered in central part of Belarus. Small colony of plants seemed to be intermediate between *A. syriaca* and *A. speciosa* was found in abandoned ornamental plantings. Hybridization between these two species, as well as in general between representatives of the genus has not been previously reported in Belarus.

Field studies were carried out in summer and autumn of 2019–2020. Herbarium specimens of putative hybrid were collected in south-west part of Minsk city (N53.847227, E27.460848). Those species were photographed and the flowers compared with those of its parent species. Most flower and inflorescence characters were measured in the field, using x10 magnifying lens. Coronal diameter was measured apically and at maximum width. Hood height represented the vertical span from the base of the hood to the top of its uppermost median projection. The distance that the horn extended beyond the interior lateral margin of the hood was measured. The main data (place, date and photos) were added to the citizen science Internet platform iNaturalist (https://www.inaturalist.org/observations/54628837). Herbarium of all *Asclepias* species stored at the Department of Botany at Belarusian State University (MSKU) was examined. Specimens collected during this research were also deposited at the same Herbarium.

During of summer field season in 2019 our attention was attracted by a small population of unknown *Asclepias* species that appeared to be plants of *A. syriaca*. It looked also very similar in description to *A. speciosa* indicated recently from Lithuania as new for Europe alien species, but differ from latter in color and shape of hoods in corolla. In July of 2020 we examined more precisely a dense stand (2 m^2) of this possible hybrid situated near the municipal middle school in abandoned ornamental plantings. After the close examination of collected flowering specimens and their comparison with flowering plants of typical *A. syriaca* and descriptions and photos of *A. speciosa* we assumed of its belonging to the hybrid between these two species.

Asclepias speciosa can be reliably distinguished from the morphologically similar *A. syriaca* only at the flowering stage. The most characteristic features are the size and shape of corolla. Hoods of *A. speciosa* are 10–14 mm long, very narrowly ovate-lanceolate, gradually attenuate, and the horns are much shorter than the hoods. Hoods of *A. syriaca* are 4–5 mm long, ovate, with a gradually rounded to acuminate apex, and the horns somewhat shorter than the hood. Another important diagnostic character is the indumentum of the pedicels, that are densely

covered with short white hairs and tomentose in *A. speciosa*, whereas those of *A. syriaca* have sparse pubescence (Woodson, 1954; Fishbein et al., 2011). These two species although often placed in different sections, are extremely difficult to distinguish with no flower. Rest of the traits that are indicated as diagnostic between two species (number of flowers in the inflorescence, form and venation of middle cauline leaf blades and their base, fruit surface etc.) probably have minor importance as they have great variability in different populations of both species.

Hybridization seems to be rare between species of *Asclepias*, judging by the few reports available in the literature and the general failure of attempts to produce hybrids artificially. But *A. syriaca* and *A. speciosa* can form an occasional fairly common spontaneous hybrids when they grow together, and the cross has been performed experimentally. It is likely that interspecific hybridization may account for the variation that is found within these species in the wild (Woodson, 1954).

The putative hybrid was observed during our study maintained the tall habit (nearly 2 m) of *A. syriaca* with its multiple lateral umbels of pink-purple flowers (normally on somewhat nodding pedicels). Pedicels are densely tomentose as in *A. speciosa*. Hoods have intermediate size and form between the two species. They are not so narrow and attenuate as in *A. speciosa*, but clearly longer and not so wide as in *A. syriaca*. The leaves (leaf venation, shape and size) were also intermediate between the two species.

The putative hybrid between *A. syriaca* and *A. speciosa* seems to be rare alien taxon in Belarus and was registered in the country for the first time. It is likely that this (or other) hybrids already occur in other regions of Belarus for the rather long time and overlooked due to morphological resemblance with the very similar *A. syriaca*. Botanists should pay special attention to determination of hybrids and their parent species in nature, and critically review collected specimens of genus *Asclepias* in Herbaria.

References

Woodson R.E. 1954. The North American species of *Asclepias* L. *Annals of the Missouri Botanical Garden*, **41**: 1–211.

Fishbein M., Chuba D., Ellison C., Mason-Gamer R.J. & Lynch S.P. 2011. Phylogenetic relationships of *Asclepias* (Apocynaceae) inferred from non-coding chloroplast DNA sequences. *Systematic Botany*, **36**: 1008–1023.

Gudžinskas Z. & Petrulaitis L. 2019. *Asclepias speciosa* (Apocynaceae, Asclepiadoideae): a rare or unrecognized alien species in Europe? *PhytoKeys*, **121**: 29–41.

Dubovik D.V., Dmitrieva S.A., Laman N.A., Lebedko V.N., Levkovitch A.V., Maslovsky O.M., Parfenov V.I., Prokhorov V.N., Pugatchevsky A.V., Savtchuk S.S., Skuratovitch A.N., Sysoj I.P., Chumakov L.S., Jakovleva I.M., Garanovitch I.M., Dzhus M.A. & Romanjuk A.L. 2020. *Chernaya kniga flory Belarusi: tchuzherodnye vredonosnye rastenia* [The black book of Belarusian Flora: alien noxious plants]. Minsk: Belaruskaya navuka. 407 p. (In Russian).

Kozlovskaja N.V. 1998. Asclepias L. *In*: **Parfenov V.I.** (Ed.) *Opredelitel' vysshikh rastenii Belarusi* [Manual of Vascular Plants of Belarus]. Minsk: Dizain PRO. 472 p. (In Russian).