



Bellevalia pseudolongipes sp. nov. (Asparagaceae): a new species from southeastern Anatolia, Turkey

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Abstract

Bellevalia pseudolongipes (Asparagaceae) is described and illustrated as a new species from Siirt province in South Eastern Anatolia, Turkey. Diagnostic morphological characters, a full description and detailed illustrations are provided. It is morphologically similar to *B. longipes* but easily differs in both several morphological characters and chromosome number. The somatic chromosome number was determined as $2n = 12$ in *B. pseudolongipes*.

Key words: taxonomy, chromosome number, Hyacintheae, Scilloideae, Siirt

Introduction

The genus *Bellevalia* Lapeyrouse (1808: 425) (Asparagaceae) comprises about 65 species and subspecies (Bareka *et al.* 2008, Jafari & Maassoumi 2008) distributed over the Mediterranean region from Morocco and Algeria eastwards to the Caucasus and Iran and subdivided into six sections: *Nutantes* Feinbrun (1940: 337), *Conicae* Feinbrun (1940: 337), *Bellevalia* (= *Patentes* Feinbrun 1940: 337) *Muscarioides* Feinbrun (1940: 337), *Strangweja* (Bertoloni 1835: 2) Persson & Wendelbo (1979: 65), and *Oxyodontae* Losina–Losinskaja ex Wendelbo (1980: 423) (Borzatti von Loewenstern *et al.* 2013). Generally, the morphological differences between taxa within *Bellevalia* are quite weak, but leaf width and pubescence, raceme shape and density, pedicel/perigone length ratio, tube/lobe ratio and perigone colour, anther and bud features (Cowley *et al.* 1994), as well as seed morphology are commonly used as basic features for species discrimination.

In her monograph, Feinbrun (1940) reported for Turkey 8 species. Wendelbo (1984) studied *Bellevalia* in Turkey and he reported 18 species, seven of which endemic to the country. In the following studies, *Bellevalia latifolia* Feinbrun (1940: 369) was reduced to a synonym of *B. olivieri* (Baker 1874: 8) Wendelbo (1985: 120) by Wendelbo (1985). Since then, six species were discovered. Three of these were given in the second supplement of Flora of Turkey (Özhatay 2000), and the remainder species [*B. leucantha* Persson (2006: 253), *B. malatyaensis* Uzunh. & H.Duman in Uzunhisarcıklı *et al.* (2013: 652) and *B. chrisii* Yıldırım & B.Şahin in Yıldırım *et al.* (2014: 10.1111/njb.00469)] were described after the second supplement of Flora of Turkey (Özhatay 2000). In another study, Johnson (2003) treated *B. pycnantha* (Koch 1849: 255) Losinskaja (1935: 310) as a synonym of *B. paradoxa* (Fischer & Meyer 1835: 30) Boissier (1882: 308). Tugay (2012) published the most recent checklist of *Bellevalia*. In this study, *B. glauca* (Lindley 1827: 1085) Kunth (1843: 309) is recorded, but these plants were later described as a distinct species, *B. chrisii* by Yıldırım *et al.* (2014). Now, the *Bellevalia* taxa number increased to 23, 13 of them endemic to Turkey.

Bellevalia longipes Post (1895: 165) is easily distinguished by quite elongate pedicels during fructification. It is distributed from Turkey, Iran, Iraq, Palestine, Syria and Transcaucasia. In this study, *Bellevalia pseudolongipes* is described as a new species from Southeastern Turkey. It is closely related to *B. longipes* and sometimes can be found growing together with the former.

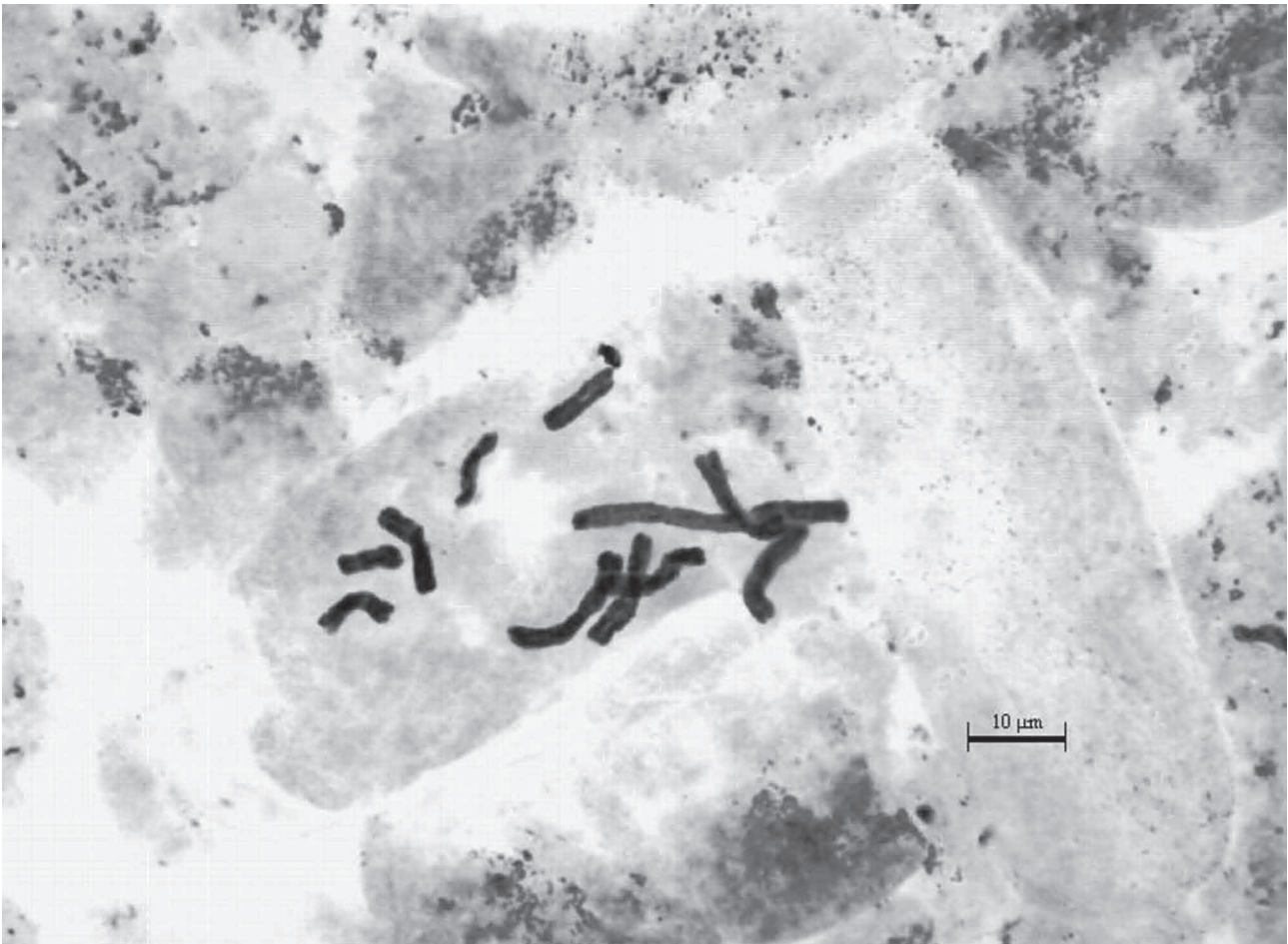


FIGURE 5. Somatic chromosomes in *Bellevalia pseudolongipes* Bar: 10 μm .

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References

- Baker, J.G. (1874) On new and little-known capsular gamophyllus Liliaceae. *Journal of Botany, British and Foreign* 12: 3–8.
- Bareka, P., Phitos D. & Kamari, G. (2008) A karyosystematic study of the genus *Bellevalia* Lapeyr. (Hyacinthaceae) in Greece. *Botanical Journal of the Linnean Society* 157: 723–739.
<http://dx.doi.org/10.1111/j.1095-8339.2008.00817.x>
- Bertoloni, A. (1835) *Strangweja spicata* Bertoloni. *Memorie della Società Italiana* 1: 2.
- Boissier, E. (1882) *Flora Orientalis* 5. Geneve & Basel, 868 pp.
- Borzatti von Loewenstern, A., Giordani, T., Astuti, G., Andreucci, A. & Peruzzi, L. (2013) Phylogenetic relationships of Italian *Bellevalia* species (Asparagaceae), inferred from morphology, karyology and molecular systematics. *Plant Biosystems* 147: 776–787.
<http://dx.doi.org/10.1080/11263504.2013.829884>
- Bothmer, R. & Wendelbo, P. (1981) Cytological and morphological variation in *Bellevalia*. *Nordic Journal of Botany* 1: 4–11.
<http://dx.doi.org/10.1111/j.1756-1051.1981.tb01026.x>
- Cowley, J., Özhatay, N. & Mathew, B. (1994) New species of *Alliaceae* & *Hyacinthaceae* from Turkey. *Kew Bulletin* 49: 481–489.
<http://dx.doi.org/10.2307/4114472>

- Feinbrun, N. (1940) A monographic study on the genus *Bellevalia* Lapeyr. *Palestine Journal of Botany* 1: 336–409.
- Fischer, F.E.L. & Meyer, C.A. (1835) *Hyacinthus paradoxus*. *Index Seminum* 1. St. Petersburg, 42 pp.
- Jafari, A. & Maassoumi, A.A. (2008) A new species of *Bellevalia* (Liliaceae / Hyacinthaceae) from Iran. *Edinburgh Journal of Botany* 65: 469–473.
<http://dx.doi.org/10.1017/s0960428608005027>
- Johnson, M.A.T. (2003) Polyploidy and karyotype variation in Turkish *Bellevalia* (Hyacinthaceae). *Botanical Journal of the Linnean Society* 143: 87–98.
<http://dx.doi.org/10.1046/j.1095-8339.2003.00209.x>
- Koch, K. (1849) Liliaceae. *Linnaea* 22: 221–256.
- Kunth, K.S. (1843) *Bellevalia* Lapeyr. In: Kunth, K.S. (Ed.) *Enumeratio Plantarum* 4. Stuttgart, pp. 306–310.
- Lapeyrouse, P.P. (1808) *Bellevalia* Lapeyr. Nouveau genre de plante de la famille des Liliacées. *Journal de Physique, de Chimie, d'Historie Naturelle et des Arts* 67(12): 425–427.
- Lindley, J. (1827) *Muscari glaucum* Lindl. In: Edwards, S. (Ed.) *Botanical Register* 13. James Ridgely, London, 1085 pp.
- Losinskaja, A.S.L. (1935) *Bellevalia* Lapeyr. In: Komarov, V.L. (Ed.) *Flora of USSR* 4. Akademiya Nauk SSSR., Leningrad, pp. 303–311.
- Martin, E., Çetin, Ö., Kahraman, A., Celep, F., Doğan, M. (2011) Cytomorphological study in certain taxa of the genus *Salvia* L. (Lamiaceae). *Caryologia* 64 (3): 272–287.
<http://dx.doi.org/10.1080/00087114.2011.10589793>
- Özhatay, N., Johnson, M.A.T., Mathew, B. & Dalgıç, G. (1991) A new hexaploid *Bellevalia* (Hyacinthaceae) from European Turkey. *Botanical Journal of the Linnean Society* 107: 89–99.
<http://dx.doi.org/10.1111/j.1095-8339.1991.tb00217.x>
- Özhatay, N. (2000) *Bellevalia* Lapeyr. In: Güner, A., Özhatay, N., Ekim, T. & Başer, K.H.C. (Eds.) *Flora of Turkey and the East Aegean Islands* 11 (Suppl. 2). Edinburgh University Press, Edinburgh, pp. 240–241.
- Persson, K. & Wendelbo, P. (1979) *Bellevalia hyacinthoides*, a new name for *Strangweja spicata* (Liliaceae). *Botaniska Notiser* 132: 65–70.
- Persson, K. (2006) One new and one emended species of *Bellevalia* (Hyacinthaceae) from Turkey. *Botanical Journal of the Linnean Society* 150: 253–260.
<http://dx.doi.org/10.1111/j.1095-8339.2006.00470.x>
- Post, G.E. (1895) *Bellevalia longipes* Post. *Bulletin de l'Herbier Boissier* 3(4): 165.
- Tugay, O. (2012) *Bellevalia* Lapeyr. In: Güner, A., Aslan, S., Ekim, T., Vural, M. & Babaç, M.T. (Eds.) *Türkiye Bitkileri Listesi (Damarlı Bitkiler)*. Nezahat Gökyiğit Botanik Bahçesi ve Flora Araştırmaları Derneği Yayını. İstanbul, pp. 95–96.
- Uzunhisarcıklı, M.E., Duman, H. & Yılmaz, S. (2013) A new species of *Bellevalia* (Hyacinthaceae) from Turkey. *Turkish Journal of Botany* 37: 651–655.
<http://dx.doi.org/10.3906/bot-1209-29>
- Wendelbo, P. (1980) Notes on *Hyacinthus* and *Bellevalia* (Liliaceae) in Turkey and Iran. *Notes from the Royal Botanic Garden, Edinburgh* 38: 423–434.
- Wendelbo, P. (1984) *Bellevalia* Lapeyr. In: Davis, P.H., Mill, R.R. & Tan, K. (Eds.) *Flora of Turkey and the East Aegean Islands* 8. Edinburgh University Press, Edinburgh, pp. 264–274.
- Wendelbo, P. (1985) *Bellevalia* Lapeyr. In: Townsend, C.C. & Guest, E. (Eds.) *Flora of Iraq* 8. Baghdad: Ministry of Agriculture, pp. 113–127.
- Wendelbo, P. (1990) *Bellevalia* Lapeyr. In: Rechinger, K.H., Browicz, K., Persson, K. & Wendelbo, P. (Eds.) *Flora Iranica: Liliaceae II*, Akademische Druck-u. Verlagsanstalt, Graz–Austria, pp. 149–165.
- Yıldırım, H., Altıoğlu, Y., Şahin, B. & Aslan, S. (2014) *Bellevalia chrisii* sp. nov. (Asparagaceae) from eastern Anatolia, Turkey. *Nordic Journal of Botany*.
<http://dx.doi.org/10.1111/njb.00469>