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Research Article

Juniperus oxycedrus L. subsp. *oxycedrus* var. *spilinanus* Yalt., Eliçin & Terzioğlu: A New Variety from Turkey

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Abstract: A new variety from Turkey is described and illustrated: *Juniperus oxycedrus* L. subsp. *oxycedrus* var. *spilinanus* Yalt., Eliçin & Terzioğlu. This variety grows in forest clearings of *Pinus brutia* Ten. and *P. nigra* J.F.Arnold subsp. *nigra* var. *caramanica* (Loudon) Rehder, and on stony slopes (800-1400 m) in Spildağı National Park, Manisa (B1) in West Anatolia. Its diagnostic morphological characters are discussed.

Key Words: Cupressaceae, Juniperus, new variety, taxonomy, Turkey

Juniperus oxycedrus L. subsp. *oxycedrus* var. *spilinanus* Yalt., Eliçin & Terzioğlu: Türkiye'den Yeni Bir Varyete

Özet: *Juniperus oxycedrus* L. subsp. *oxycedrus* var. *spilinanus* Yalt., Eliçin & Terzioğlu Türkiye'den yeni bir varyete olarak tanımlanmış ve şekli verilmiştir. Bu takson, B1 Manisa, Spildağı'nda *Pinus brutia* Ten. ve *P. nigra* J.F.Arnold subsp. *nigra* var. *caramanica* (Loudon) Rehder orman içi açıklıklarında, taşlı yamaçlarda ve 800-1400 m yükseltiler arasında yayılmaktadır. Bu çalışmada, taksonun ayırt edici morfolojik karakterleri tartışılmıştır.

Anahtar Sözcükler: *Cupressaceae, Juniperus*, yeni varyete, taksonomi, Türkiye

Introduction

Juniperus L. (Cupressaceae) contains c. 60 species and hundreds of cultivars (Galderen & Smith, 1989). Junipers are widely distributed throughout the northern hemisphere, from the Arctic zone to the mountains of the tropics (Rehder, 1974; Farjon, 2005). The genus has been subdivided into 2 sections based on flower and leaf characteristics (Coode & Cullen, 1965); sects *Oxycedrus* Spach and *Sabina* Spach. *Juniperus* are 2 of the richest and most widely distributed woody genera in Turkey. Although some species are important for timber production worldwide, c. 55 Asian species are used for the production of hand-made tools and some small objects (Galderen & Smith, 1989). In Turkey, only 2 species (*J. excelsa* Bieb. and *J. foetidissima* Willd.) are used for timber production, but most taxa are important for erosion control, especially in poor, dry habitats.

J. oxycedrus L. is a dioecious shrub or tree, which grows up to 14 m and is distributed in S. Europe, W. Syria, N. Iran, and Caucasia (Coode & Cullen, 1965). The oil known as cade is obtained as a distillate from its wood (Polunin & Huxley, 1972). The Turkish name of the species, Katran Ardıcı, comes from this oil. Different approaches have been followed in the taxonomy of *Juniperus*. Farjon (2005) considered that *J. oxycedrus* has 4 subspecies: subsp. *oxycedrus*, subsp. *macrocarpa* (Sibth. & Sm.) Ball, subsp. *badia* (H.Gay) Debeaux, and subsp. *transtagana* Franco. The Flora of Turkey includes only the first 2 in sect. *Oxycedrus* (Coode & Cullen, 1965). Although *J. macrocarpa* Sibth. & Sm. was treated as a subspecies of *J. oxycedrus* by Franco (1993), Coode & Cullen (1965), Zohary (1973), and Farjon (2005), it was recorded by Browicz (1996) as a rare species in Turkey. Farjon (2000) indicated that *J. oblonga* M.Bieb.

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is a variable taxon of *J. communis* L. no longer recognised as a species in most modern Floras, contrary to Coode & Cullen (1965).

While attending the 4th Plant Life of South West Asia Symposium in 1995, during an excursion to Spildağı National Park, the authors came across some specimens of *J. oxycedrus* that were morphologically different. After careful field observations and a more thorough examination in the herbarium, we decided that these specimens were distinctly different and represented a new variety.

Juniperus oxycedrus* L. subsp. *oxycedrus* var. *spilinanus Yalt., Eliçin & Terzioğlu, *var. nova* (Figures 1 and 2).

Frutex decumbens ramis saepe prostratis 0.5-0.6 m; ramuli juveniles triquetri. Folia terna verticillata acicularia, acutissime pungentia usque ad 10 mm longa, ad 1.5 mm lata, supra plana vel concava, striis 2 albis stomatis. Flores dioici. Strobili feminei subglobosi, usque ad 10 mm in diametro, purpurescentes vel brunnei. Semina plerumque 3. Hab. in regione montana sylvatica.

Holotype: Turkey B1. Manisa: Spildağı National Park, in forest clearings of *Pinus brutia* and *P. nigra* subsp. *nigra* var. *caramanica*, and on stony slopes, 800-1400 m, 28.v.1995, KATO *13371* (isotype KTUB, *533*).

Dioecious, prostrate shrub up to 0.5-0.6 m. Leaves lanceolate, patent, green, with 2 glaucous bands above, 6-10 x 1-1.5 mm, acuminate-mucronate. Cone ripening in the second year, up to 10 mm in diameter, reddish brown, globose. Seeds free, usually 3.

Etymology: The new varietal name combines Spildağı and dwarf.

Discussion

Two subspecies of *J. oxycedrus* (subsp. *oxycedrus* and subsp. *macrocarpa*) are widely distributed throughout most of Turkey. The first subspecies is a widespread taxon (from sea level to 1800 m, in squares A1, A2, A3, A4, A5, A6, A7, B1, B2, B4, B5, B6, B9, C3, C4, C5, C6, and C7, Figure 2 (Coode & Cullen, 1965)), but the second is a Mediterranean element that occurs only in a very restricted coastal area in Turkey (e.g., coastal areas of B1, C1, and C2, Figure 2 (Browicz, 1996)). Subsp. *transtagana* (*syn.*: *J. oxycedrus* subsp. *rufescens* (Link ex Endl.) Holmboe) grows in S.W. Portugal (Franco, 1993; Farjon 2005) and subsp. *badia* grows in N. Algeria, E. Portugal, and C. Spain (Farjon, 2005). No records of these 2 subspecies exist for Turkey (Coode & Cullen, 1965; Davis et al., 1988; Farjon, 2000).

This new variety resembles subsp. *transtagana*, but clearly differs from it by having a prostrate habit (subsp. *transtagana* is fastigiate) and not growing in maritime sands. The new variety is a montane taxon (800-1500 m). Likewise, the variety can be distinguished from subsp. *macrocarpa* by the traits of habitat and the dimensions of leaves and cones (subsp. *macrocarpa*'s are clearly bigger than the new variety's). The new variety also resembles *J. communis* L. var. *saxatilis* Pall. because of its habit, but clearly differs from it by having 2 stomatal bands on the upper surface of the leaves (Figure 1), which *J. communis* does not. Furthermore, the reddish brown cones are clearly different from the blackish cones of *J. communis*. Adams (2004) recently described a new species, *Juniperus deltoides* R.P.Adams, from Greece that is related to *J. oxycedrus*, but clearly distinguished from it by the traits of its leaves.

Figure 1. *Juniperus oxycedrus* subsp. *oxycedrus* var. *spilinanus* (drawn from holotype).

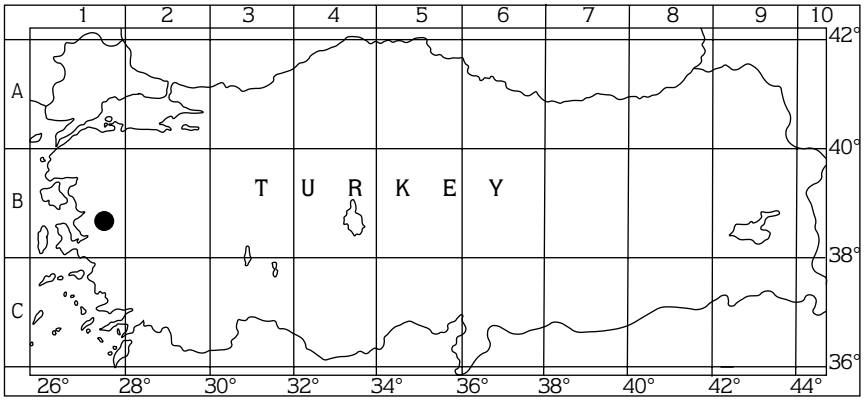

Figure 2. Distribution map of *Juniperus oxycedrus* subsp. *oxycedrus* var. *spilinanus* (•).

A new identification key for all *J. oxycedrus* taxa is based on Coode & Cullen (1965) and Farjon (2005):

1. Spreading shrub or tree
   2. Leaves 1.1-2 mm wide; cones 6-13 mm diameter
      3. Cones orange- or reddish-brown, 6-13 mm diameter; ultimate branchlets not sub-pendulous ..... **subsp. oxycedrus**
         4. Erect shrub or small tree to 8 m; leaves 6-13 x 1.1-2 mm..... **var. oxycedrus**
         4. Prostrate shrub to 0.5-0.6 m; leaves 6-10 x 1-1.5 mm..... **var. spilinanus**
      3. Cones purplish-brown, 10-13 mm diameter; ultimate branchlets sub-pendulous .....**subsp. badia**
   2. Leaves 2-3 mm wide; cones (12-) 15-23 mm diameter .....**subsp. macrocarpa**
1. Fastigiate shrub up to 2 m ..... **subsp. transtagana**

The following woody and herbaceous taxa grow with *J. oxycedrus* subsp. *oxycedrus* var. *spilinanus* at its sites in Spildağı National Park:

Pinus brutia Ten., *Ephedra major* Host, *Quercus infectoria* Oliv., *Quercus coccifera* L., *Fraxinus ornus* L., *Cercis siliquastrum* L., *Pistacia terebinthus* L. subsp. *palaestina* (Boiss.) Engler, *Crataegus monogyna* Jacq. subsp. *monogyna, Arbutus andrachne* L., *Phillyrea latifolia* L., *Jasminum fruticans* L., *Cistus creticus* L., *Lonicera etrusca* Santi var. *etrusca, Origanum sipyleum* L., *Dactylis glomerata* L., and *Crepis reuteriana* Boiss. subsp. *reuteriana*, at 800-900 m above sea level. *Pinus nigra* J.F.Arnold subsp. *nigra* var. *caramanica* (Loudon) Rehder, *Juniperus sabina* L., *Rosa micrantha* Sm., *Rosa canina* L., *Berberis cretica* L., *Prunus divaricata* Ledeb., *Sorbus umbellata* (Desf.) Fritsch, *Daphne oleoides* Schreber, *Astragalus ptilodes* Boiss. var. *cariensis* Boiss., *Genista lydia* Boiss. var. *lydia*, *Luzula forsteri* (Sm.) DC., *Doronicum orientale* Hoffm., *Ranunculus spunerianus* Boiss., *Cirsium sipyleum* O.Schwarz, *Tulipa silvestris* L., and *Ornithogalum nutans* L., at 1400-1500 m above sea level.

References

Adams RP (2004*). Juniperus deltoides*, a new species, and nomenclatural notes on *Juniperus polycarpos* and *J. turcomanica* (Cupressaceae). *Phytologia* 86: 49-53.

Browicz K (1996). *Juniperus macrocarpa* Sibth. & Sm. in the area of the Flora of Turkey and the East Aegean Islands. *The Karaca Arboretum Magazine* 3: 117-121.

Coode MJE & Cullen J (1965). *Juniperus* L. In: Davis PH (ed.) *Flora of Turkey and the East Aegean Islands*, 1: 78-84. Edinburgh: Edinburgh University Press.

Davis PH, Mill RR & Tan K (eds.) (1988). *Flora of Turkey and the East Aegean Islands*. Vol. 10. Edinburgh: Edinburgh Univ. Press.

Farjon A (2000). *Juniperus* L. In: Güner A, Özhatay N, Ekim T, Başer KHC (eds.), *Flora of Turkey and the East Aegean Islands*, 11: 8-10. Edinburgh: Edinburgh University Press.

Farjon AA (2005). *Monograph of Cupressaceae* and *Sciadopitys*. Kew: Royal Botanic Gardens.

Franco JA (1993). *Juniperus* L. In: Tutin TG, Heywood VH, Burges NA, Valentine DH, Walters SM, Webb DA (eds.), *Flora Europaea*, 2nd edit., 1:46-48.

Galderen DM van & Smith JRP van (1989). *Conifers*. 2nd edit., BT Batsford Ltd., London.

Polunin O & Huxley A (1972). *Flowers of the Mediterranean*. Chatto and Vinders, London.

Rehder A (1974). *Manual of Cultivated Trees and Shrubs*. Second edition, Macmillan Co. Inc., New York. Cambridge: Cambridge University Press.

Zohary M (1973). *Geobotanical Foundations of the Middle East*. vol. 2. Stuttgart: Gustav Fischer Verlag.