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# *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 fastigate) 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).

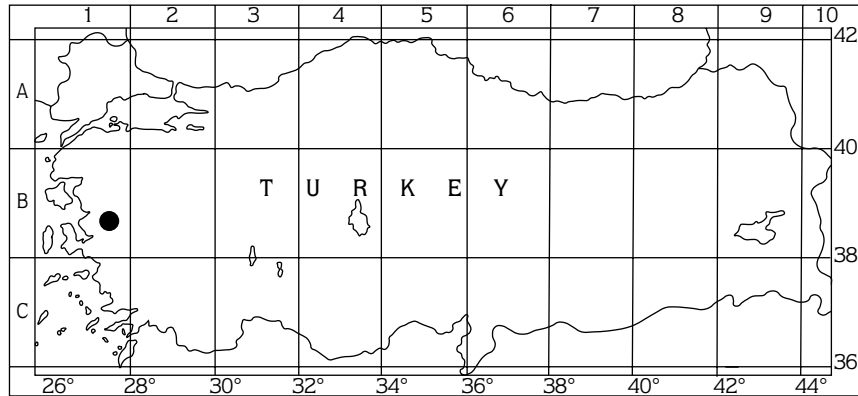


Figure 2. Distribution map of *Juniperus oxycedrus* subsp. *oxycedrus* var. *spilianus* (•).

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. spilianus**
  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. *spilianus* 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.

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