

UDC 581.526.532(495) = 20

A STUDY OF SOME PHYTOCOENOSSES
OF *EUPHORBIA DENDROIDES* L.
FOUND IN GREECE

EDOARDO BIONDI¹ and JEAN-MARIE GÉHU²

¹Dipartimento di Botanica ed Ecologia, Università di Camerino, Italia;
²Faculté de Pharmacie, Laboratoire de Botanique, Université de Paris V, France)

Received January 15, 1987

The article is a study of vegetation in some maquis of *Euphorbia dendroides* and *Olea sylvestris* the authors have found in continental Greece at Monastiraki (the Corinth Canal) and on the island of Crete (at Kissomos and Sauda). Such vegetation belongs to the association *Oleo-Euphorbietum dendroidis* Trinajstić (1973) 1984 described for some places along the coast of Yugoslavia. Among the relevés shown, the ones coming from Monastiraki are the most corresponding to the association, while the others taken on the Island Crete belong to a really nitrophilous variant of the same association.

Introduction

The present research is a phytosociological study of the vegetation in some Mediterranean maquis with a dominance of *Euphorbia dendroides* observed in two excursions on the insular and continental Greek coast.*

The authors, who previously studied Greek vegetation which can be ascribed to the class *Quercetea ilicis*, and more precisely to the alliance *Oleo-Ceratonion*, did not think it was necessary to point out the coenoses with dominance of *Euphorbia dendroides*, which they considered either variants, 'facies', of other maquis of the thermomediterranean vegetation belt or quite neglected (Horvat, Glavač, Ellenberg, 1974 and Barbero, Quezel, 1976). Interpretations like these have been given by other authors in similar situations taking place in both central and western Mediterranean areas and getting a clear significance of geo-

* The present research has been supported by Italian C. N. R. (progetto bilaterale)

graphic vicariants (Molinier, 1954). Only the maquis of *Euphorbia dendroides* growing on some small islands and on the south coast of Yugoslavia had first been considered as an autonomous type of vegetation and consequently ascribed to *Oleo-Euphorbietum dendroidis* Trinajstić 1973 of the alliance *Oleo-Ceratonion*; this association includes other maquis growing in different areas of the Mediterranean Basin, as well (Trinajstić, 1973; Trinajstić and Šugar, 1977).

The maquis of *Euphorbia dendroides* which we found on the Greek coast are distributed in the following places: in Monastiraki, on the northern coast of the Corinth Canal and on the Island of Crete, where they grow in the south-western utmost border, on the Kissomos Peninsula and on the cliffs to the East of Sauda. Even on the Peloponnese we found populations of *Euphorbia dendroides*, near the built-up-area of the ancient Monemvasia, where, however, they have a differential function for a variation of a rocky association, with dominance of the big composite *Ptilostemon chamaepeuce*, which is worth further studying.

We have to emphasize that the locality of Monastiraki indicates that the area of the alliance *Oleo-Ceratonion* on the Balkan Peninsula has spread to a part of the Corinth Canal, previously considered by Horvat, Glavač, Ellenberg (1974) as lacking in this type of vegetation.

Analysis of the Vegetation Type

Euphorbia dendroides vegetation studied in Greece grows in well-sheltered, sunny places, on slopes and on calcareous rock faces covered with a thin coat of earth.

Table 1 shows the phytosociological relevés taken in Monastiraki (rel. 1—4) and on the Island of Crete: Kissomos Peninsula (rel. 5—6) and Sauda rel. 7). They belong to the association *Oleo-Euphorbietum dendroidis* to which mainly the relevés taken in Monastiraki correspond well. In fact it is necessary to point out that Table 1 is not very homogeneous, while the first relevés reveal a wellstructured vegetation, the second ones belong to a nitrophilous variant of it. The latter is differentiated by some species such as: *Ballota acetabulosa*, *Anagyris foetida*, *Althaea cretica* and *Bryonia cretica*.

Conclusions

The vegetation observed in Greece thus belongs to *Oleo-Euphorbietum dendroidis* association, but we have to specify that it seems more exact to ascribe it according to the list of the character species shown in Trinajstić (1984, cfr. Table 2) where *Euphorbia dendroides*, *Ephedra fragilis* subsp. *campylopoda* and *Prasium majus* are quoted. Previously, however, it was considered as a characteristic group (Trinajstić, 1973): *Euphorbia dendroides*, *Ephedra fragilis*, *Prasium majus*, *Teucrium marum* and *Anthyllis barba-jovis*. These species helped Trinajstić to include in one type of vegetation relevés coming from different areas of the Mediterranean Basin, but such species, in our opinion, show a higher floristical and ecological variety. This makes it possible to include them in different vicarious associations. In the Balkan region, it is possible to recognize the association *Oleo-Euphorbietum dendroidis* Trinajstić (1973) 1984, characterized by the species mentioned above and shown in Table 1, among which we have to give a particular significance

Tab. 1. OLEO-EUPHORBIETUM DENDROIDIS Trinajstić (1973) 1984

Rel. no.	1	2	3	4	5	6	7	Pre- sence
Character species of ass.								
<i>Euphorbia dendroides</i>	1.2	2.3	1.2	4.4	4.5	4.4	4.4	7
<i>Prasium majus</i>	1.1	.	+2	+	+2	1.2	1.2	6
<i>Ephedra fragilis</i> ssp. <i>campylopoda</i>	1.1	+2	+2	.	.	.	.	3
Diff. species of variant								
<i>Ballota acetabulosa</i>	.	.	.	+	+2	+2	.	3
<i>Anagyris foetida</i>	.	.	.	.	+2	2.2	+2	3
<i>Althaea cretica</i>	.	.	.	.	+	+2	.	2
<i>Bryonia cretica</i>	.	.	.	.	+	+	.	2
Char. spec. of Oleo-ceratonion and Quercetea ilicis								
<i>Olea sylvestris</i>	4.4	2.2	3.4	2.2	.	.	+2	5
<i>Asparagus acutifolius</i>	1.1	1.1	1.1	+	.	.	.	4
<i>Pistacia lentiscus</i>	1.2	3.3	+2	.	.	.	.	3
<i>Quercus coccifera</i>	+2	2.3	3.3	.	.	.	.	3
<i>Arisarum vulgare</i>	+	+	+	.	.	.	.	3
<i>Rhamnus oleoides</i>	1.2	2.3	.	.	.	+2	.	3
<i>Asparagus aphyllus</i>	.	.	.	.	+2	2.2	1.1	3
<i>Rubia peregrina</i>	.	.	.	.	.	.	1.2	1
<i>Osyris quadripartita</i>	.	.	.	.	.	.	2.4	1
Companions								
<i>Oryzopsis miliacea</i>	1.2	2.3	3.3	+	1.2	.	1.1	6
<i>Phlomis fruticosa</i>	.	.	.	2.2	2.3	2.2	2.3	4
<i>Urginea maritima</i>	.	.	.	1.2	1.1	2.3	+	4
<i>Allium subhirsutum</i>	+2	1.2	1.2	.	.	.	.	3
<i>Crucianella latifolia</i>	+	+2	+	.	.	.	.	3
<i>Cymbopogon hirtus</i>	.	.	.	.	+	+2	.	2
<i>Thymus capitatus</i>	.	.	.	.	+2	+2	.	2
<i>Ruta chalepensis</i>	.	.	.	.	+	.	+	2
<i>Sarcopoterium spinosum</i>	.	.	.	.	.	+2	.	1
<i>Geranium purpureum</i>	.	.	.	.	.	1.1	.	1
<i>Pallenis spinosa</i>	.	.	.	.	.	+	.	1
<i>Calicotome villosa</i>	.	.	.	.	.	+2	.	1
<i>Ficus carica</i>	.	.	.	.	.	.	+2	1
<i>Satureja thymbra</i>	.	.	.	.	.	.	+	1
<i>Phagnalon rupestre</i>	.	.	.	.	.	.	+	1
<i>Psoralea bituminosa</i>	.	.	.	.	.	.	+	1

to the taxon *Ephedra fragilis* subsp. *campylopoda*, distributed only in the eastern Mediterranean area. It is ecologically and chorologically well-distinguished from subsp. *fragilis* distributed in the central and western Mediterranean areas.

In our table we have not shown the species mentioned by Trinajstić (1973 and 1984) as differentials of subass. *coronilletosum*, because Greek vegetation is more thermophilous as we can see from the presence of the species: *Rhamnus oleoides*, *Quercus coccifera* and *Asparagus aphyllus*.

In conclusion we can say that the association of *Oleo-Euphorbietum dendroidis* Trinajstić (1973) 1984 is distributed above all in the Balkan

Peninsula and that within its own area we can distinguish two geographical races with different floristic and ecological characters. The first one present in east-Adriatic area is mesophilous and the second in Aegean area is more thermophilous.

References

- Barbero, M., P. Quezel, 1976: Les groupements forestiers de Grèce Centro-Méridionale. *Ecologia Mediterranea* 2, 3—86.
- Horvat, I., V. Glavač, H. Ellenberg, 1974: Vegetation Südosteuropas. Gustav Fischer, Stuttgart.
- Molinier, R., 1954: Les climax cotiers de la méditerranée occidentale. *Vegetatio* 4, 284—308.
- Trinajstić, I., 1973: O zoni sveze *Oleo-Ceratonion* u istočnojadranskom dijelu Balkanskog poluotoka. *Ekologija* 8 (2), 283—294.
- Trinajstić, I., 1984: Vegetacija sveze *Oleo-Ceratonion* Br.-Bl. u Jadranskom primorju Jugoslavije. *Acta Bot. Croat.* 43, 167—173.
- Trinajstić, I., I. Šugar, 1977: Contribution à la connaissance de la végétation de l'alliance *Oleo-Ceratonion* de presqu'île de Salerno au Sud de Naples (Italie). *Acta Bot. Croat.* 36, 135—141.

SAŽETAK

O NEKIM BILJNIM ZAJEDNICAMA S VRSTOM *EUPHORBIA DENDROIDES* L. U GRČKOJ

Edoardo Biondi¹ i Jean-Marie Géhu²

¹Dipartimento di Botanica ed Ecologia, Università di Camerino, Italia;

²Faculté de Pharmacie, Laboratoire de Botanique, Université de Paris V, France)

Prikazana je vegetacija nekih sastojina s vrstama *Euphorbia dendroides* i *Olea sylvestris*, koje su autori pronašli u kontinentalnoj Grčkoj kraj Monastirakija (Korintski kanal) i na otoku Kreti (u Kissomosu i Saudi). Ta je vegetacija označena kao asocijacija *Oleo-Euphorbietum dendroidis* Trinajstić (1973) 1984 opisana ranije iz nekih područja jugoslavenske obale.

Među prikazanim sastojinama najviše odgovaraju asocijaciji one iz okolice Monastirakija, dok ostale, snimljene na otoku Kreti, pripadaju nitrofilnoj varijanti te asocijacije.

Iznesena su napokon neka razmatranja o rasprostranjenosti te zajednice u Sredozemlju. Autori smatraju da je as. *Oleo-Euphorbietum dendroidis* prisutna samo na Balkanskom poluotoku gdje se javlja u obliku dviju geografskih rasa, od kojih je jedna rasprostranjena pretežno uz Jadran s mezofilnim karakteristikama, i druga uz Egejsko more termofilnoga karaktera.

Sastojine s vrstom *Euphorbia dendroides*, dominantnom u središnjem i zapadnom Mediteranu, pripadale bi, međutim, drugim zajednicama koje će moći biti opisane kasnije nakon detaljnijih istraživanja.

Dr. Edoardo Biondi
Istituto Botanico
Università di Camerino
Via Pontoni 5
Camerino (Italia)

Dr. Jean-Marie Géhu
Station de Phytosociologie
fondamentale et appliquée
Hendries
F 59270 Baillleul (France)