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Native gymnosperms and their woods in Adriatic Archipelago

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RESUME : Gymnospermes spontanées et leurs forêts dans l'Archipel adriatique. La flore des gymnospermes insulaires adriatiques est la plus diversifiée parmi les îles méditerranéennes, y compris 16 taxons spontanés dont 10 indiqués par les flores classiques et les 6 suivants enregistrés par les études actuelles : Ephedra procera, Juniperus lycia, J. hemisphaerica, J. oxycedrus ssp. badia, Pinus nigra ssp. croatica et Abies pardei dont la synécologie est ensuite analysée.

INTRODUCTION. The classical floristic and phytogeographical reports on Adriatic islands prior to 1980ies documented there the presence of 10 species of the next native gymnosperms: Ephedra sphylla Forsk.: dunes of SE isles, Pistacio-Alsternetalia. E. nebrodensis Tin.: insular cliffs, Centaureo-Campanulion Hic. Cupressus sempervirens L.: SE isles only (ecology few known). Juniperus communis L.: NE island peaks, Seslerio-Ostryetum Horv. J. oxycedrus L.s.s.: widespread in maquis, Quercetea ilicis Br.-Bl. J. macrocarpa Sb. & Sm.: acide flysch, in pinewoods and oakwoods. J. phoenicea L.s.s.: frequent in maquis, Pistacio-Alsternetalia Mart. Pinus pinea L.: native in SE islands (ecology few known). P. halepensis Mill.s.s.: frequent in S isles, Prasio-Pinetum Lov. P. nigra ssp. dalmatica (Vis.) Franco: major mounts in southern Dalmatian islands, stormy ridges (Pinetum dalmaticae Horv.).

RESULTS. The recent detailed prospections across this archipelago added the next 6 native taxa of the gymnosperms, and they also elucidated the ecology of some precedent ones. The related vouchers are in Herberium ADRZ. Thus by the actual study, the gymnosperms in this archipelago include 16 native taxa, being probably the most diversified ones among the Mediterranean islands. Besides these ones, there are naturalized 7 exotic taxa within the synanthropic Robinietalia Neuh.: Pinus brutia Ten., P. pinaster Sol., Cupressus arizonica Greene, Thuja orientalis L. Taxus baccata L., Juniperus sabina L. and J. virginiana L.

1. Ephedra procera Fisch. & Mey. (E. graeca C.A.M.) is an East Mediterranean taxon with its westernmost outposts in SE Adriatic, within the Cysthoselino-Cupressetum (cf. infra).

2. Juniperus lycia L. (J. turbinata Guss.) occurs only in SE isles Vis, Korčula and Elafiti, mostly by the beaches within the backshore scrub of Ephedro-Juniperetum lyciae Quez. et al.

3. J. hemisphaerica Presl. (J. aetnensis M.G.) occur sporadically in the apical pinewoods (Orno-Pinion H.Em) of the major insular mounts of Krk, Brač and Pelješac.

4. J. oxycedrus s.l. ssp. badia (Gay.) Deb. is a robust arborescent type (to 12 m) of West Mediterranean, with its new easternmost outposts in the northernmost Adriatic islands Cres, Krk and Plavnik, growing within the windswept rockwoods of Lycio-Juniperetum badiae (Hic.) Lov. marked by J. oxycedrus ssp. badia V, Prunus spinosa ssp. istriaca V, Crataegus brevispina V, Lycium europaeum III, Rubus ulmifolius ssp. dalmatinus V, Rosa tomentosa ssp. kerstiana IV, Carduus micropterus V, Pallenis crostica IV.

5. Pinus nigra Arn. ssp. crostica Lov. (LOVRIC 1981) is endemic to NE Adriatic coast, including also some sites in the adjacent isles Krk and Prvic, within the stormy ridge pinewoods of Cotoneasstro-Pinetum nigrae Horv.

6. Abies pardei Gaus. (A. biokovoensis Kuš.) is subendemic of the Dalmatian coastal mountains where it forms the submediterranean firwoods (Ostryo-Abietetum Kuš.). Some isolated residual trees occur also in the northernmost Krk island, in the oakwoods.

One defined recently also the few known synecology and the related communities of some other conifers in Adriatic isles where only their presence and distribution has been precised:

Cupressus sempervirens ssp. horizontalis (Mill.) M.G. is the only native cypress of SE Adriatic, within the relict rockwoods of Cysthoselino-Cupressetum horizontalis (Anic) Lov., marked by C. sempervirens V, Phlomis fruticosa IV, Putoria calabrica V, Ephedra procera IV, Frangula nikolae III, Cytisus globiferum V, Cephalaria mediterranea V, Hermodactylus tuberosus III, etc.

Pinus pinea L. as native is rare in the flysch and dunes of SE isles Mljet and Elafiti, within the Myrto-Pinetum pineae (Anic) Lov.: P. pinea IV, Myrtus communis ssp. tarentina IV, Calycotome spinosa V, Teline monspessulana III, Lupinus iacromensis III, etc.

Reference

Lovric, A.Z. 1981, Nouveautés de la flore du Littoral croate. Oesterreichische botanische Zeitschrift, 119: 567-571.

I-I4

Diversity of the Oaks and Oakwoods in Adriatic Islands

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RESUME : Diversité des chênes et des chênaies des îles adriatiques. Parmi les îles méditerranéennes, les chênes insulaires adriatiques sont les plus diversifiés, y compris 16 taxons dont 11 sont enregistrés par les études actuelles : Quercus rotundifolia, Qu. calliprinos, Qu. macrolepis, Qu. virgiliana, Qu. brachyphylla, Qu. X saxicola, Qu. dalechampii, Qu. brutia, Qu. pedunculiflora, Qu. X streimii et Qu. conferta. On a également étudié leur synécologie et les phytocoénoses afférentes.

INTRODUCTION. There existed any special work on oaks in adriatic islands, and the classical floristic reports covering this archipelago prior to 1980ies, there confirmed only 5 oaks : Quercus ilex L.: widespread in maquis, Quercetalia ilicis Br.-Bl. Qu. coccifera L.: only SE isles, Orno-Quercetum cocciferae Hic. Qu. cretaea Lam.: native in Cres island only, acide flysch woods. Qu. pubescens Willd.: north isles, woods Ostryo-Carpinion Horv. Qu. cerris L.: flysch on island mounts, Orno-Quercetum cerridis.

The ancient indications of Qu. petraea and Qu. robur in this archipelago recently were not confirmed nor expectable, being probably confused with other vicarious taxa (LOVRIC 1981).

RESULTS. The recent detailed field studies on the Adriatic oaks, there added 11 other insular taxa whose vouchers are in Herberium ADRZ, and their nomenclature is mostly after the Flora Europaea (TUTIN et al., 1964-1980). One studied also their synecology and related phytocoenoses. Thus besides the Aegean islands, the Adriatic archipelago includes a richest oak assemblage among the mediterranean islands, including 16 diverse taxa.

1. Qu. rotundifolia Lam. (Qu. ballota Desf.) is a West Mediterranean oak with its easternmost outposts in SE Adriatic isles Korčula and Mljet. It grows there in the ravines and karst sinkholes, within the tall and humide subtropical laurisylvae of Arbuto-Quercetum ballotae Lov. with abundant lianes, mosses and vascular epiphytes. Indicators (presence symbols: I = 1-20% sites ... V = 80-100% ones): Qu. rotundifolia V, Qu. calliprinos III, Qu. conferta II, Qu. macrolepis II, Arbutus andrachne IV, A.X andrachnoides II, Juniperus macrocarpa V, Pistacia saportae III, and lianes Ruscus lexus V, Hedera taurica V, Smilax mauretanica IV, Rubia tucheri IV, and also epiphytes Ficus caprificus II, Parietaria judaica IV, Sedum maximum II, Polypodium australe III.

2. Qu. calliprinos Webb. (Qu. pseudococcifera Boiss.) is an evergreen East Mediterranean oak, with its westernmost outposts in SE Adriatic (Korčula and Mljet) within Arbuto-Quercetum.

3. Qu. macrolepis Kotschy (Qu. aegylops auct.) is the rarest island oak of Adriatic: Arbuto-Quercetum, Lastovo isle only.

4. Qu. conferta Kit. (Qu. frainetto auct.) is rare in SE Adriatic woods of Mljet and Pelješac (more frequent in mainland).

5. Qu. virgiliana Ten.s.s. (Qu. dalmatica Red.) is a very xeric and sclerophyllic semievergreen oak (spring-deciduous) with pungent leaves, frequent in northern isles Krk, Plavnik and Cres, growing there in the mixed semievergreen pramaquises of a relict Tertiary origin (Fico-Quercetum dalmaticae Lov.) marked by a rich dendroflora of even 58 coexisting different trees and shrubs e.g. Qu. virgiliana V, Qu. X saxicola III, Ficus caprificus V, Acer marsicum V, Fraxinus argentea V, Colutea gallica V, Euphorbia wulfenii V, etc. This wood occurs chiefly in ravines and sinkholes.

6. Qu. brachyphylla Kotschy is an East Mediterranean oak, with its NW outposts in Adriatic islands Krk, Korčula and Mljet, in semievergreen pseudomaquis Pistacio-Quercetum brachyphyllae Quez.

7. Qu. X saxicola Vuk. (Qu. virgiliana X brachyphylla) is a hybrid in N isles Krk and Cres, within the Fico-Quercetum woods.

8. Qu. dalechampii Ten. (Qu. spannina auct.) is rare in N island hills of Krk and Cres, within the Seslerio-Ostryetum Horv.

9. Qu. brutia Ten. occurs only in Krk island, in the wet valley carrwoods of Fraxino-Quercetum brutiae (Karp.) Fuk.

10. Qu. pedunculiflora Koch (Qu. hess Kotschy) is an Oriental deciduous oak with its westernmost outpost in Baška valley of Krk island, in the wet tall carrwoods of Vitici-Quercetum pedunculiflorae Lov. marked by Qu. pedunculiflora V, Qu. X streimii IV, Ulmus canescens V, Carpinus caucasica II, Thelycrania australis V, Vitex IV, Gladiolus illyricus IV, Dryopteris borreri III, etc.

11. Qu. X streimii Kotschy (Qu. pedunculiflora X pubescens) is a rare hybrid in Krk island, within the Vitici-Quercetum.

Reference

Lovric, A.Z. 1981, Some rare semisempervirent oaks in Adriatic coastal Karst. Šumarski List (Zagreb), 105: 119-132.