



A taxonomic revision of the *Capparis spinosa* group (Capparaceae) from the Mediterranean to Central Asia

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Abstract

A revision of the *Capparis spinosa* group has been carried out in southern Europe, northern Africa, western and central Asia, in order to provide a uniform taxonomic treatment of its representatives. The xerotropical origin of this group, showing disjunct distribution in several holarctic and paleotropical regions, is underlined and the different species concepts historically adopted are discussed. In the present treatment a single species is recognized, *C. spinosa*, represented in the study area by two subspecies. *C. spinosa* subsp. *spinosa* shows derived characters, high polymorphism and a wide distribution range from the Mediterranean eastwards to China and Nepal. *C. spinosa* subsp. *rupestris*, less variable and showing phenotypic characters closer to the tropical stock of the group, is recorded in the Mediterranean Region and the Sahara. On the basis of herbarium and field investigations, the variability and distribution of the two subspecies are examined. Within each subspecies some varieties are recognized, for which morphological, chorological and autecological data are presented. Four new combinations (*C. spinosa* subsp. *spinosa* var. *herbacea*, *C. spinosa* subsp. *spinosa* var. *atlantica*, *C. spinosa* subsp. *rupestris* var. *ovata*, *C. spinosa* subsp. *rupestris* var. *myrtifolia*) are proposed.

Key words: *Capparis* sect. *Capparis*, distribution, ecology, intraspecific variability, species concept

Introduction

The *Capparis spinosa* Linnaeus (1753: 503) group, belonging to *Capparis* Linnaeus (1753: 503) sect. *Capparis*, includes several entities distributed in southern Europe, northern and eastern Africa, Madagascar, western, central and south-eastern Asia, Australia and Oceania (Jacobs 1965). From a phylogenetic point of view it is characterized by plesiomorphic features within the whole genus, such as simple hairs and solitary flowers in the leaf axils (Fici 2001). In the Middle East, Zohary (1973) regarded the genus *Capparis* as a relic of a Tertiary xero-tropical flora, which gave origin to extratropical derivatives within the *C. spinosa* group. Discussing the origin of the Chinese desert flora, Liu (1995) considered *C. spinosa* and other species extending to the Mediterranean Region as phytogeographic elements showing Tethydean connections between these areas. An ancient origin of *Capparis* sect. *Capparis* and its basic position within the genus are supported by its primitive features, with special reference to indumentum, flower position and ovary. Furthermore, the presence of several variants on different gondwanian landmasses represents a complex biogeographic study case (Fici 2004).

Commercial capers are flower buds pickled in salt or vinegar and used as a condiment, but also unripe fruits and young twigs are widely pickled (Rivera *et al.* 2003a). Capers are collected from wild plants in several Mediterranean and Asiatic countries, while specialized cultivation of the plant is recorded from Spain, France and Italy, where several local cultivars and ethnovarieties are known (Inocencio *et al.* 2006). *C. spinosa* s. l. has been used by man for alimentary and therapeutic purposes since ancient times, as reported by several Greek and Latin Authors, e. g. Hippocrates, Aristotle, Theophrastus, Pliny the Elder, etc. (Fici & Gianguzzi 1997). This use has been traced back to Prehistory in Syria (9th–8th mill. B. C., Tell Mureybit I–IV) and Greece (9.000–7.400 B. C., Franchti Cave), as evidenced by the presence of caper seeds and charcoals in archaeological sites (Rivera *et al.* 2002). Recently, *C. spinosa* seeds, together with vegetative and reproductive parts of *Cannabis sativa*, were discovered in the Yanghai Tombs of Turpan District in Xingjiang (c. 2800 B. P.), where it is hypothesized that the plant was used for medicinal purposes (Jiang *et al.* 2007).

The representatives of the *C. spinosa* group are often characterized by marked polymorphism, with presence of intermediate forms and parallel variation (Heywood 1964 a). Due to this complex variation pattern, the group has

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