

A new interactive identification tool for woods from the Balkans, the Aegean and adjacent areas

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Introduction

Wood is one of the most important and also most versatile natural resources, involved in processes as different as construction, food preparation, tool-making, and a wide range of technical processes. As wood survives charring better than most other plant remains, it is also usually highly abundant in archaeological excavations. Thus it broadens the data basis for archaeobotanical research, especially in regions with scarce preservation of other plant material. It is possible to obtain charred wood remains (from certain deposits which have accumulated during longer periods) which are free from intentional selective processes and reflect quite well the species composition of the surrounding woodland (e.g. Chabal 1992, Heinz & Thiébaud 1998). This has important implications for the studies of the past vegetation and the reconstruction of past ecosystems, especially in arid areas with scarce pollen preservation, but also in order to complement environmental data (e.g. from pollen profiles) in temperate areas. Furthermore, these data can be contrasted to charcoal records from archaeological contexts influenced by specific patterns of wood use: the intentional selection – or avoidance – of certain species.

Need for the Present Tool

During the past decades, identification of wood has been successively improved, and some books set standards either on a general basis (e.g. Greguss 1959, 1972; Schweingruber 1990) or covering certain geographical areas, such as central Europe (Grosser 1977, Schweingruber 1978), the Western Mediterranean (Vermet et al. 2001), the Levant (Fahn et al. 1986), or the North African deserts (Neumann et al. 2001). However, for the northeastern Mediterranean, namely the Balkans and the Aegean, no such comprehensive work is available yet.

The eastern Mediterranean has always played a significant role in the communication (and also for the development) of new cultural techniques and technology, and has been a transit area for agriculture and metallurgy. This importance is most visible in sites of ancient civilisations such as Troy, Ephesos, and Miletus. Furthermore, wood use is one of the central issues in Mediterraneanisation: the question whether the sclerophyllous macchia/phrygana communities represent a primeval (climax) state of vegetation, or are merely the degraded remnants of former forests, reduced by intensive human (over)use, is still controversial. As the economical value of wood (including imports) is documented since antiquity, wood identification is the key to the reconstruction of subsistence patterns and trade routes.

In order to assist research into the past of this long-term cultivated and anthropogenically influenced area, the authors started working on the currently presented tool for wood identification.



Study area

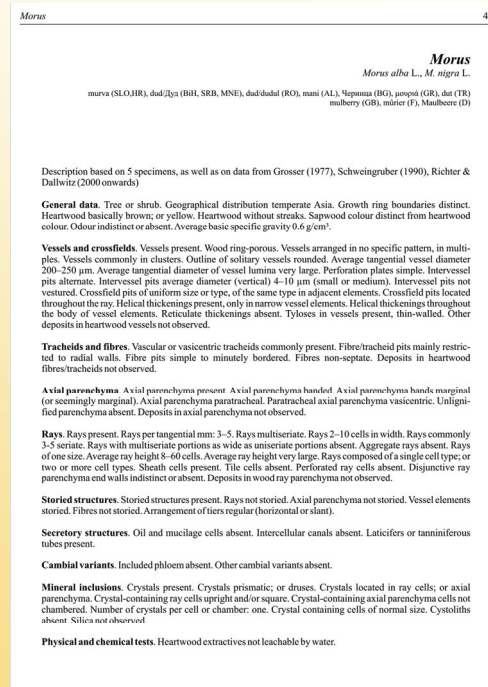
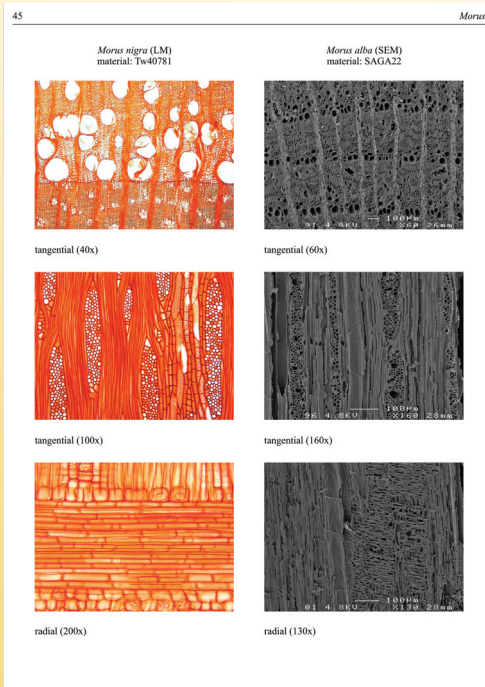
The area covered by the key extends from the coastal areas of Slovenia to the Aegean coast of Turkey, focusing on eu-Mediterranean woody plants. However, the admixed elements from the Balkans and Aegean regions found in the supra-Mediterranean altitudinal levels are incorporated, as well as some of the most important mountain-inhabiting species.

Specifications of the Key

Basing on DELTA (Description Language for Taxonomy; Dallwitz et al. 2000a,b) a data set has been created basing on both the authors' own observations and also integrating popular wood anatomical literature (see also Heiss 2000-2009). A total of 154 wood types are currently described in the database, comprising confirmed features of approx. 200 species from the area. Character coding refers to the standard lists on softwood and hardwood identification created by the IAWA (1981, 2004), but combining them into a single key. In the database, our focus was set on creating a broad basis of character variation - in all cases, we preferred a more "diffuse" differentiation instead of false positives!

The database is used for two complementary identification approaches:

1. a printed microphotographic atlas displaying light microscopy and SEM imagery, and giving detailed description of the wood anatomical features.
2. a light-weight and easy-to-use interactive identification key (IntKey; Dallwitz et al. 2000b) in English, French and German, which will be provided on an accompanying CD.



One important feature of the interactive ID key is that it is targeted at the archaeobotanical user, providing specialised identification criteria for a certain kind of material – choosing e.g. "subfossil wood" will eliminate chemical and colour characters, and "charred wood" will also remove detailed measurements which may lead to misidentifications due to shrinkage processes. The key is still in development and will presumably be published in spring 2011.

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