Characterisation of the xylem of 352 conifers

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Abstract

Following the traditional methods of preparation and description of wood at microscopy level, 352 descriptions of the woods of conifers were made.

For the characterisation of each wood a multiple entry key was prepared, with a total of 81 features divided into four groups: tracheids with 29 features, axial parenchyma with 8, wood rays with 37 and resin canals with 7.

Key words: anatomy, wood, identification.

Introduction

The uniformity of the xylem of conifers places this vegetal group among those that present most difficulties when it comes to making an identification. When undertaking identification of the wood of conifers, the first obstacle to overcome is delimiting which large group the wood belongs to, e.g. with or without canals, with or without ray tracheids, etc.

The tool that best responds to this initial placement is without a doubt the multiple entry key. Philipps (1948), proposed the first list of features with which any conifer wood could be characterised using a key of this type. He based it on 36 features divided into 6 groups, bringing about a radical change in the process of identification. Although the simplicity of the features chosen made it difficult for users to identify conifers at the species level, its use has allowed, and continues to allow, the placement of the wood within the large groups of conifers. It lacks measurements and only uses counting for the number of epithelial cells in the resin canals and the number of pits per cross field. The last group, containing three features, is reserved for the density and hardness of the wood.

After this contribution, there have been other multiple entry keys, which in addition to including the description of features, also include a data base with the descriptions of the wood of conifers based on the particular key (LaPasha, 1986; García Esteban et al., 2002; Heiss, 2003).

In a manner parallel, or even subsequent to the first placement, dichotomic keys provide a fundamental tool for the process of identification, either in terms of families, genera, species of a specific geographical region, and so on. (e.g. Castellarnau, 1880; Jacquiot, 1955; Greguss, 1955; Peraza, 1964; García Esteban and Guindeo, 1988; Schweingruber, 1990).

Finally, specific studies of comparative anatomy and the separation of species of conifers anatomically very close to each other can be used to determine species. (e.g. Castellarnau, 1883; Visscher and Jagels, 2003; Wiedenhoeft et al., 2003).

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Received: 17-03-04; Accepted: 01-06-04.