

# Role of micromorphological leaf traits and molecular data in taxonomy of three sympatric white oak species and their hybrids (*Quercus* L.)

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pages 546-558

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Hybridisation and introgression occur with high frequency in the genus *Quercus* and interspecific hybrid individuals show patterns of morphological traits that might be influenced in different ways.

Micromorphological leaf traits appear to be positive and stable in *Quercus* species, and by combining genetic and micromorphological analyses, it is possible to compare the patterns of variation in micromorphological leaf traits of pure and hybrid individuals. Trichomes and stomatal traits were examined using scanning electron microscopy at 150–2000 × magnification in sympatric oak species collected in a natural deciduous wood. *Q. frainetto*, *Q. petraea* and *Q. pubescens* appear to have a relatively predictable complement of trichome types. Both the pattern and quantitative values of each micromorphological trait examined (stomata and trichomes) have an important role in identifying hybrids and pure species; putative hybrids show a pattern of trichomes that is a combination of the parental types. These results, combined with the fact that micromorphological traits generally exhibit higher consistency, indicate that this source of information can be an excellent clue to hybridisation and introgression and useful in taxonomical, systematic and evolutionary studies on the European white oaks.