

CART ANALYSIS FOR THE DETERMINATION OF *LIQUIDAMBAR STYRACIFLUA* L. VARIETIES

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The International Union for the Protection of New Varieties of Plants (UPOV) provides an effective system of plant variety protection, with the aim of promoting the development of new varieties of plants. This protection could be granted only to the varieties that comply with the *DUS test*. That is, the new variety must be distinct (D) from any other existing variety, and also sufficiently uniform (U) and stable (S).

Liquidambar styraciflua L. is an ornamental tree species with a high economic value. Several varieties of this plant have been obtained. Nevertheless, the Guidelines for the conduct of the DUS test in this species are not defined yet.

In this paper, we have evaluated a set of Characteristics (covering variation in size, shape and colour of leaves and branches) in sixteen *L. styraciflua* varieties in order to select those traits that better fulfil the DUS test requirements. For this purpose, Classification And Regression Trees (CART) [1] have been used. In comparison with other classification techniques (e.g Linear Discriminant Analysis), CART analysis has the advantage of simplicity of results. This simplicity is useful not only for purposes of rapid classification of new observations, but can also often yield a much simpler model for explaining why observations are classified in a particular manner.

The selected Characteristics could be included in future Guidelines for the DUS test in *L. styraciflua*.

References

[1] L. Breiman, J. Friedman, R.A. Olshen and C.J. Stone (1984). *Classification and regression trees*, Wadsworth.