MEETINGS OF THE BOTANICAL SOCIETY OF THE NETHERLANDS

MEETING OF THE COMMITTEE FOR PLANT MORPHOLOGY AND -ANATOMY ON MARCH 30TH, 1968

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Wood-anatomical studies in the Rubiaceae of Surinam and of some other tropical South-American countries

In the frame of a general investigation on the anatomy of the secondary wood of ligneous genera occurring in Suriname carried out in the Botanical Museum and Herbarium of the Utrecht University several *Rubiaceae*, including some samples from other regions of tropical South America, were studied. Next was traced if and to what degree wood structure could be used as a support for one or other of the systematic classifications of this family; the outcome of this study will be published in a forthcoming paper in "Proceedings of the Koninklijke Nederlandse Academie van Wetenschappen, series C".

The material comprised 60 species belonging to 34 genera, representing 6 out of 8 subfamilies distinguished by Bremekamp. The material shows a number of differences for the various elements:

1. The vessels are either exclusively solitary, or partly arranged in small clusters and in short or long radial multiples; they are often very small (25–40 μ) and very numerous (60–80/sq. mm); sometimes over 100 μ wide and rather scarce (8–12/sq.mm); perforations are usually simple, in some genera both simple and scalariform perforations occur near the primary wood; two perforations in one transverse wall occur in some species also in mature wood; the intervascular pits, 3–6 μ wide, are vestured; in nearly all species the outgrowths are fine and difficult to see, though apparently forming a narrow ring around the pit-canal.
2. The fibres are septate or non-septate; in most species with septate fibres parenchyma is lacking. In classifying the fibres in libriform fibres and fibre-tracheids the simplest definitions are those from the glossary of terms edited in 1964 by the committee of the International Association of Wood Anatomists. It relegates all the intermediates between the extreme types, such as the fibre-tracheids with large bordered pits, pointed ends and rather thick walls and the libriform fibres with simple pits and thick walls which are usually distinctly longer than the cambium initials, to the category of fibre-tracheids, considering only the elements with simple pit pairs to be libriform fibres. When applying these definitions to the *Rubiaceae* most of them have fibre-tracheids. The few species with libriform fibres are distributed at random through the family, and species belonging to a same genus may possess fibre-tracheids. Using the definitions given by REINDERS (1935) most *Rubiaceae* have libriform fibres. Nearly all genera with fibre-tracheids belong to two subfamilies (*Cinchonoideae* and *Ixorioideae*), by some authors (Verdcourt) considered as one subfamily, and in those genera fibre-tracheids are present in all species. However, Reinders is right in saying that the correlations with other taxonomic characters are less clear here than in many other families.
3. The rays are either exclusively uniseriate and composed of upright/square or of procumbent cells, or uni- and multiseriate and composed of upright/square and/or procumbent cells. The distinction between procumbent cells on one side, square/upright cells on the other side, is useful in practice; however, as seen on radial sections, these different cell types pass into each other. The ray-vessel-pitting is usually the same as the intervascular pitting; in a few species large perforations occur in the ray-vessel-walls, comparable to the vessel perforations. Sclerotic cells are present in the rays of *Retiniphyllum laxiflorum* and *Schradera rotundata*.

4. Wood parenchyma is lacking in the *Psychotrieae;* if present it usually is apotracheal: diffuse, in clusters, as short bands, or as narrow to broad concentric bands, sometimes paratracheal as narrow vasicentric rings. Axial- and ray parenchyma is not lignified in *Schradera rotundata.*

Crystals occur in the form of raphids in the *Rubioideae* and *Hillioideae,* usually in procumbent or upright ray cells, in some species in the axial parenchyma; in some species rhombic crystals are present.