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# Applied analysis of lacquer films based on pyrolysis-gas chromatography/mass spectrometry

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## Abstract

Ancient lacquer film, a *Nanban* lacquer film, an old lacquer-ware object imported from an Asian country, and the Baroque and Rococo lacquer films were analyzed by pyrolysis-gas chromatography/mass spectrometry. Compared with the results of the natural lacquer film, it was revealed that the ancient lacquer film and *Nanban* lacquer film were made from *Rhus vernicifera*, and the old lacquer-ware imported from an Asian country was made from *Melanorrhoea usitata*. However, the Baroque and Rococo lacquer films obtained from the Doerner Institute in Munich, Germany were made from natural resins. 3-Pentadecylcatechol (MW = 320) (urushiol), 3-heptadecylcatechol (MW = 348) (laccol), and 4-heptadecylcatechol (MW = 348) (thitsiol) were the main products of the pyrolysis of *R. vernicifera*, *Rhus succedanea*, and *M. usitata*.



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## Keywords

Lacquer; Pyrolysis; Resin; Urishiol; Laccol; Thitsiol

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