Caesalpinia sappan L.

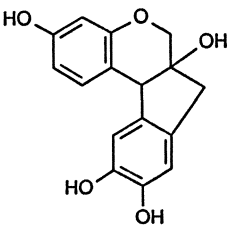
31

31.1 Introduction

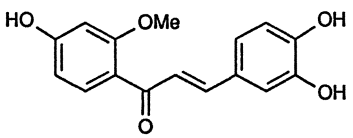
Sumu, Lignum Sappan, is the dry heartwood of *Caesalpinia sappan* L. (Fabaceae). It is listed officially in the Chinese Pharmacopoeia and used in traditional Chinese medicine as an analgesic and antiinflammatory agent in treatment of traumatic diseases and menstrual disorders.

31.2 Chemical Constituents

The heartwood of *C. sappan* is known to contain a number of phenolic pigments. One of the major pigments, brazilin (*31-1*), was isolated in the last century. A sappanchalcone (*31-2*) was newly isolated from the heartwood of *C. sappan* and proposed as an intermediate in the biosynthesis of brazilin. The structure of sappanchalcone was elucidated on the basis of spectrometric data and synthesis from 2-*O*-methylresacetophenone and protocatechualdehyde [1].



Brazilin (*31-1*)



Sappanchalcone (*31-2*)

A number of compounds related to brazilin, including some proposed biogenetic intermediates of brazilin, were also isolated. Thus, the isolation of 17 aromatic compounds together with brazilin and sappanchalcone was reported [2]. Some of these compounds, such as sappanone B (*31-3*), sappanone A (*31-4*), 3-hydroxysappanone B (*31-5*), and sappanol (*31-6*), have been considered to be 3-benzylchroman derivatives [2].

Heller and Tamm [3] proposed a biogenetic pathway from chalcone via 3-benzylchroman analogues. Isolation of sappanol and its 3-methyl ether as key intermediates, which upon heating are converted partly into brazilin, together with sappanchalcone, sappanone A, sappanone B, and 3-hydroxysappanone B, which are considered to be precursors of brazilin, supported the above hypothesis [2]. The biogenetic pathway of brazilin from sappanchalcone is illustrated in Fig. 31-1.