CHEMICAL COMPOSITION OF THE OLEORESIN OF *Larix dahurica*

É. N. Shmidt and V. A. Pentegova

UDC 547.595.9

There is no information in the literature on the chemical composition of the oleoresin of *Larix dahurica* Turc. (Dahurian larch), although its wood, bark, and turpentine have been studied previously [1-3].

The present paper gives the results of a study of the neutral diterpenoids and resin acids, the total amount of which in the oleoresin is 80%.

The oleoresin of the Dahurian larch (collected in 1971 in the upper reaches of the R. Bur'i, Khabarovsk territory) was treated in the usual way [4] for the isolation of neutral (20%) and acidic (60%) components. The composition of the diterpenoids was investigated by adsorption chromatography with preliminary separation of the hydrocarbons and oxygen-containing compounds. By repeated chromatography on silica gel and on silica gel with the addition of silver nitrate we isolated the following individual hydrocarbons: isopimaradiene, $C_{20}H_{32}$, n_D^{20} 1.5156, $[\alpha]_D^{20}$ −28°* (chloroform) (literature data [5]: $[\alpha]_D^{20}$ −31.3°), dehydroabietane, $C_{20}H_{30}$, n_D^{20} −1.5190, $[\alpha]_D^{20}$ + 53° (chloroform) (literature data [6]: $[\alpha]_D^{20}$ +53.8°, bp 120−122°C (0.06 mm); abietadiene, $C_{20}H_{32}$, n_D^{20} 1.5310, $[\alpha]_D^{20}$ −77.3° (literature data [7]: n_D^{20} 1.5311, $[\alpha]_D^{20}$ −79.6°, and nordehydroabietane, $C_{19}H_{26}$, n_D^{20} 1.5350, $[\alpha]_D^{20}$ + 154° (literature data [8]: $[\alpha]_D^{20}$ + 152°).

Among the oxygen-containing compounds the main one was epimanool $C_{20}H_{34}O$, mp 35-37°C, $[\alpha]_D^{20}$ +50° (literature data [9]: mp 36.5-38°C, $[\alpha]_D^{20}$ + 51°) larixyl acetate, $C_{22}H_{36}O_3$, mp 78-80°C, $[\alpha]_D^{20}$ +58° (literature data [10]: mp 82°C, $[\alpha]_D^{20}$ + 67°), and larixol, $C_{20}H_{34}O_2$, mp 99-100°C, $[\alpha]_D^{20}$ +51.3° (literature data [10]: mp 101°C, $[\alpha]_D^{20}$ +57°).

The acids of the oleoresin of the Dahurian larch were investigated in the form of methyl esters and were identified by GLC and by adsorption chromatography. The following composition of the resin acids was established: isopimaric, palustric, abietic, dihydroabietic, neoabietic, and cis-communic. The latter is a bicyclic acid of the labdane type, as was confirmed spectroscopically.

The results of the experiments performed showed that in its chemical composition the oleoresin of the Dihurian larch differs strongly from the oleoresin of the Siberian larch [11] but is similar in composition to the oleoresin of the European larch (*Larix europea* Link) which belongs to the same section [10]. These three species of conifers produce bicyclic diterpenoids of the labdane type with an oxygen-containing functions at C_{13}.

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*The specific rotations of all the compounds were determined in chloroform.

Novosirbirsk Institute of Organic Chemistry, Siberian Branch, Academy of Sciences of the USSR.
Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 675-676, September-October, 1974. Original article submitted April 17, 1974.

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