

Investigation of Extractive Phenolic Substances of Larch Bark

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Technology of waste-free processing of larch bark is elaborated in the laboratory of Wood Chemistry of our institute. It provides for extracting of raw material by solvents of increasing polarity. It makes possible to obtain a wide range of valuable multipurpose products (up to 30% of bark dry mass).

At one of the stage of this technology we isolate fraction of monomeric phenolic substances from bark, its composition makes possible to suggest existence of wide spectrum of biological activity.

Modern science tendency provides for possession of full information about chemical composition of natural objects using by human. We investigated quality composition of extracted fraction of monomeric phenolic substances. The investigation was done with the help of different methods of chromatography (including HPLC) and UF-spectroscopy. We established that acid part of phenolic substances is set of phenolic acids, which are presented by hydroxybenzoic and hydroxycinnamic structures. Among hydroxybenzoic acids are identified *p*-hydroxybenzoic, vanilic, protocatechic and 3,5-methoxy-4-hydroxybenzoic. Hydroxycinnamic acids are presented by *p*-coumaric, caffeic and ferulic acids. Possession of 3,5-methoxy-4-hydroxybenzoic acid in larch bark in free statement was discovered for the first time. It was discovered characteristic possession of such structures in larch pine-needles before.

We discovered two flavanonols - dihydroquercetin and dihydrokaempferol, five flavonols - quercetin, kaempferol, morin, miricetin, isorhamnetin and flavanon naringenin in the neutral part of fraction of phenolic substances with the help of method HPLC. Naringenin, morin, miricetin and isorhamnetin are discovered in the larch bark for the first time.

The use of method HPLC for analyses of phenolic substances opens wide possibilities for certification of products isolated from larch bark.