ANALYSIS OF POSSIBILITIES Soy Protein IN PRODUCTION WOOD COMPOSITE MATERIALS

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The possibility of the use of soy protein for the production of wood-based composite materials, including plywood, particle boards and straw. Formed the main advantages and disadvantages of adhesives based on soy protein.

Soy protein, wood composites, adhesives.

Today, increasing requirements for wood composites and focuses on quality, environmental and economic indicators. These indicators significantly influenced by the choice of adhesive materials. In the production of wood-based composite materials like glue materials are mainly synthetic resins such as fenoloformaldehidni and karbamidoformaldehidni. The raw material for their production are petroleum products, natural and associated gas.

The need to manufacture environmentally friendly materials from easily renewable natural resources, and thoroughness of petrochemical resources necessitated explore the possibility of using biopolymers. Utilization of by-products of these proteins as biological glues and resins help overcome environmental problems and add value to agricultural secondary products.

The main source for the production of proteins of plant origin are cereals and legumes, including wheat, corn, soybeans, peas, and others.

Found that of wheat can get 7-14% protein corn - 6.12%. Typically, originally derived starch and protein is a secondary product. Soya contains the largest

amount of protein (which is about 40%.) compared with cereals such as wheat, corn. Thus, the main source for the production of protein is soy. The most common are soy proteins used in the form of flour, concentrate and isolate[1, 2, 3, 4].

The chemical composition of soy protein - it biopolymers composed of macromolecules containing more than 18-20 amino acids linked by amide bonds polypeptide chain. Proteins contain some functional groups that readily interact with the hydroxyl and carboxyl groups of cellulose fibers. These functional groups shown in (Fig. 1)[5, 6].

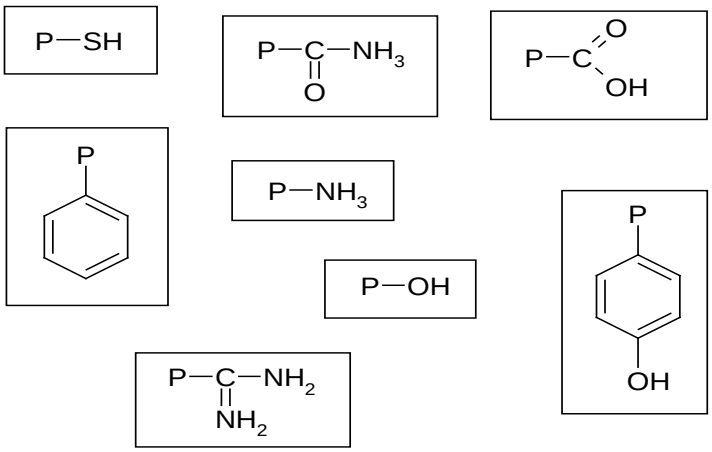

Fig. 1. Reactive chemical groups coyevoho protein.

Because soy protein is suggested to use as a base adhesive compositions for bonding between a wood surfaces.We recommend using adhesives based on soy protein for the production of plywood. Adhesives formulated as follows: soy protein added to distilled water in ratios of 1: 6 and the resulting suspension was heated to 50 ° CWhich stirred for 120 min. Adhesive used for bonding veneers as hot and cold method [5]. The resulting material is environmentally friendly, meets the requirements of the standard, but low water resistance. Therefore, this plywood used in furniture and paneling for interior walls.

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To improve the quality characteristics of plywood that is made using soy-protein adhesives, proposed to modify them through physical, chemical and enzyme methods [6].

Modification of proteins allows you to get adhesives with a wide range of physical and chemical properties and different storage conditions. Most soy protein modification carried out by chemical method is based on adding chemicals (urea, trypsin, sodium hydroxide). These substances make it possible to change the properties of the protein adhesives in the required direction. For example, the addition of urea allows you to get adhesive bonding, increased water resistance. Sodium hydroxide combined with soy protein increases the strength of the plywood to chipping and water resistance of the adhesive layer. This is

because the addition of sodium hydroxide increases the disclosure of protein molecules, which results in increased contact with the bonding surface of the wood. Sodium silicate and slaked lime is added to a stable viscosity adhesive that allows you to increase the viability of glue and reach a maximum number of its water resistance [7, 8].

A step in the use of soy protein filling straw and chipboard. The modified soy protein particles stick together well (straw, wood) in the production of composite materials. During the production of OSB panels recommend using modified silicates soy-protein adhesives [9].

Thus, the modified protein based adhesives with improved physicochemical properties by changing its molecular structure. Therefore, these adhesives are recommended for use in the production of wood composite materials.

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Proanalyzyrovano Possibility of application soevыh proteynov for production drevesnыh kompozytsyonnыh materials, in particular faneгы, shaving and solomennыh plates. Sformyrovanы Main Advantages and disadvantages of application glue based on soevыh proteynov.

Soevыy proteyn, drevesnыe kompozytsyonnыe materials, kley.

In paper we consider the possibility of the using soy proteins for the wood composite materials production, such as plywood, particleboards

and strawboards. The main advantages and disadvantages of adhesives based on soy protein have been formed.

Soy protein, wood composites, adhesives

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FOR DRYING TECHNOLOGY round timber

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The results of calculations using mathematical software drying stresses in round timber. We describe a way to control their size.

Round timber technology drying, drying tension control process.

The growing demand for wooden houses require improvement of existing and development of new technologies. More

expensive ekolohobespechnymy the so-called "wild log", ie houses of logs, which contain a natural form and bark is removed manually. The advantages of such structures are evident, the more they resemble authentic wooden buildings. The cost of such buildings is high and is associated not only with the technology of production, but also long-term investment freeze, since the establishment of joinery (windows, doors, etc.), the building is put into operation should allow it to stabilize its size. The process of aging for drying wood lasts 1-3 years after first picking up depending on the size and breed of round timber. So, to avoid this is to develop appropriate drying technology round assortments.

The purpose of research- Development of defect-free drying technology roundwood.

Research Methodology - The traditional approach used to develop defect-free drying on the rational mode woodworking. It calculates the safety criteria by comparing the calculated stresses in drying lumber vysushuvanomu limit tensile strength across the grain [1]. To calculate the stresses in the round assortment we used simulation drying process based on software programming language TurboPascal.

Results. The proposed calculation of internal pressure based on the use of modern computer technology and mathematical software. This enables us to calculate the internal stress on the PC and enables