IMPROVING THE TECHNOLOGY OF PRODUCING CHIPBOARD PLATES BASED ON LOCAL RAW MATERIALS

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https://doi.org/10.5281/zenodo.7483683

Аннотация

Одним из наиболее вероятных химических процессов, протекающих в растительной клетке под влиянием воды и температуры, является частичный гидролиз лигноуглеводных связей. При этом вещества растительной клетки не только сохраняют свою природную активность, но за счет высвобождения функциональных групп повышают свою реакционную способность для ряда химических взаимодействий. Так, при разрыве лигноуглеродных связей высвобождаются реакционноспособные лигниновые группы, в результате чего реакционноспособный лигнин участвует в реакциях конденсации с веществами, содержащими альдегидные группы, даже в условиях относительно мягкого давления. В данной статье представлена информация о технологии производства древесно-стружечных плит из отечественного тростникового сырья.

Ключевые слова. Клей для ДСП, синтез клея, формальдегид, новые методы, местное сырье, тростник.

Abstract

One of the most likely chemical processes that occur in a plant cell under the influence of water and temperature is the partial hydrolysis of lignocarbohydrate bonds. At the same time, plant cell substances not only retain their natural activity, but due to the release of functional groups, they increase their reactivity for a number of chemical interactions. Thus, when lignocarbon bonds are broken, reactive lignin groups are released, as a result of which reactive lignin participates in condensation reactions with substances containing aldehyde groups, even under conditions of relatively mild pressure. This article provides information on the technology of chipboard production from domestic reed raw materials.

Key words. Chipboard glue, glue synthesis, formaldehyde, new methods, local raw material, cane.

INTRODUCTION

In our opinion, the method of obtaining fibrous mass based on explosive autohydrolysis technology is the most promising. Its use is an interesting alternative to existing methods of wood fiber pulp production. This is due to the following factors: the absence of chemical reagents and, as a result, the absence of problems caused by corrosion of the equipment, as well as the need to restore or destroy them, the process is harmless to the environment, no. the need to additionally introduce synthetic binders into the wood pulp, high productivity process, depending on the selected technological scheme (continuous or periodic operation), no need for additional stages of processing plant materials, from low-quality wood accessibility. This, together with the absence of a hydromass measurement step,

results in significant economic benefits. It is possible to integrate the technological process based on literature data that the processes occurring in plant materials under VAG conditions obey the laws of hydrolytic degradation. However, information on the chemical transformation of plant raw material components during the VAG process is scarce and based on the study of woody types of plant raw materials (wood chips, sawdust).

LITERATURE ANALYSIS AND METHODOLOGY

In addition to the above-described methods of obtaining fiber mass, which are currently widely used, there are a number of works that propose simplified technologies for the production of fiber boards from straw and cane. These are personal ways to gain fiber mass. These include boiling straw and reeds in water at atmospheric pressure to water ratio of 1:10 for one hour. The author of the work proposes a technology in which the plates are obtained from a mixture of sawdust and straw boiled in a solution of slaked lime with the addition of alkali. When receiving fiber boards, waste from the wood processing industry and agricultural waste can be partially used: straw, firewood, waste paper, etc. However, the use of this type of waste makes its corrections both in the technology of production of flooring materials and, as a result, in the quality characteristics of wooden panels. Thus, an increase in the amount of waste paper in the fiber mixture leads to an increase in the strength of the boards with a simultaneous increase in their water absorption. The use of cotton stalks allows to reduce the cost of raw materials (due to the availability of a raw material base), but it increases the costs of preliminary preparation of raw materials (high moisture content of raw materials makes it difficult for the grinder to work). The authors suggest adding up to 10% wood shavings to the cotton stalks to avoid fiber clogging of the grinders at the pulping stage.

RESULTS

The second stage of the fiberboard production process is processing the fibers directly into the product. The main methods of such processing of fibrous mass: wet, dry, semi-dry and wet-dry methods of forming a wooden carpet. The wet method of fiberboard production is based on free dehydration of the hydromass, followed by evacuation and pre-pressing. By adding various additives to the fibrous mass, the boards are given bio-, water and fire resistance. And when adding additives, it is very important that indicators such as water absorption, swelling and strength comply with GOST. In the field of wood pulp processing, the development of methods of imparting special properties to fiberboards has been a priority in recent years.

CONCLUSION

It should be noted separately that in the production of panels made of cane, it is very important to attach their hydrophobization. With intensive drying, wooden boards do not restore their original properties, even after soaking. To ensure permanent water resistance, hydrophobization methods are based on blocking the hydroxyl groups of wood components. This is usually achieved by increasing the content of phenol-formaldehyde resin and heat treating the finished boards. At the same time, the method of increasing water resistance by increasing the resin content is used to a limited extent due to the significant increase in the cost of boards and the increase in formaldehyde emissions.

References:

1. Davronovna, K. M., Soatmurodovna, S. R., & Alizoda, M. H. (2022). Gallurgical Enrichment of Silvinite Mines and Technology of Potassium Ore Processing.CrossRefView Record in ScopusGoogle Scholar
2. Xaydarova, M. D., Eshqorayev, S. S., & Ro□Zimurodov, B. I. (2022). Kaliy ma□danlarining dunyo bo□yicha uchrashi. Science and Education, 3(6), 149-151.
3. Chorievich, E. S., & Sadriddin o'g'li, E. S. (2022). Abdulhamidova Hilola Sherzod qizi. Abdulhamidov Jahongir Sherzod o'g'li VODOROD ISHLAB CHIQARISH: ELEKTROLIZ, 2.
4. Eshqorayev, S. S., & Ro'zimurodov, B. I. (2022). AHOLI YASHASH XONADONLARIDA IS GAZIDAN HIMOYALOVCHI FILTRLAR TAYYORLASH. Eurasian Journal of Medical and Natural Sciences, 2(6), 209-212.
5. Eshqorayev, S. S., Ro□zimurodov, B. I., & Choriyeva, M. S. (2022). YOSHLARNI ILM-FAN VA INNOVATSIYALARGA QIZIQTIRISHNING NOAN□ANAVIY USULI.
6. Eshkoraev, S., Abdulhamidova, H., & Javgashev, Y. (2022). INGREDIENT OF PORTLAND CEMENT. International Bulletin of Applied Science and Technology, 2(9), 21-23.
7. Davronovna, K. M., Soatmurodovna, S. R., & Alizoda, M. H. (2022). Gallurgical Enrichment of Silvinite Mines and Technology of Potassium Ore Processing.
8. M. Geilen, S. Tripakis, and M. Wiggers. The earlier the better: A theory of timed actor interfaces. In 14th Intl. Conf. Hybrid Systems: Computation and Control (HSCC'11). ACM, 2011.
9. Абашева, Е. А., Бабамуратов, Б. Э., Баубекова, Г. Д., Бейсембаев, Г. Б., Беришева, Л. Б., Булатбаева, К. Н., ... & Юнусов, Э. Ш. (2021). ИННОВАЦИОННОЕ РАЗВИТИЕ НАУКИ И ОБРАЗОВАНИЯ.
10. Эшкараев, С. Ч., Тураев, Х. Х., & Бабамуратов, Б. Э. (2021). РАДИОЛОГИЧЕСКАЯ ОЦЕНКА РАДИОНУКЛИДОВ В ПОЧВАХ ЮЖНЫХ РЕГИОНОВ РЕСПУБЛИКИ УЗБЕКИСТАН. In ИННОВАЦИОННОЕ РАЗВИТИЕ НАУКИ И ОБРАЗОВАНИЯ (pp. 290-319).
11. Abdulhamidova, H., Eshkoraev, S., & Javgashev, Y. (2022). TECHNOLOGY OF SILICATE BRICK PRODUCTION. Solution of social problems in management and economy, 1(4), 8-11.
12. Chorievich, E. S., & Sadriddin o'g'li, E. S. (2022). Abdulhamidova Hilola Sherzod qizi. Abdulhamidov Jahongir Sherzod o'g'li VODOROD ISHLAB CHIQARISH: ELEKTROLIZ, 2.
13. Eshqorayev, S. S., & Ro'zimurodov, B. I. (2022). AHOLI YASHASH XONADONLARIDA IS GAZIDAN HIMOYALOVCHI FILTRLAR TAYYORLASH. Eurasian Journal of Medical and Natural Sciences, 2(6), 209-212.
14. Xaydarova, M. D., Eshqorayev, S. S., & Ro'Zimurodov, B. I. (2022). Kaliy ma'danlarining dunyo bo'yicha uchrashi. Science and Education, 3(6), 149-151.
15. Eshqorayev, S. S., Ro'zimurodov, B. I., & Choriyeva, M. S. (2022). YOSHLARNI ILM-FAN VA INNOVATSIYALARGA QIZIQTIRISHNING NOAN'ANAVIY USULI.
16. Xaydarova, M. D., Eshqorayev, S. S., & Ro'zimurodov, B. I. (2022). TYUBEGATAN KONINING SILVINITLARINI ERITISH JARAYONINI O 'RGANISH. O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI, 1(9), 37-39.
17. Eshqorayev, S. S., & Choriyeva, M. S. (2022). Tog'-kon sanoatida texnologiya va uning ishga ta'sirini tushunish. Miasto Przyszłości, 24, 237-239.
18. Eshkaraev, S., Turaev, K., & Eshkoraev, S. (2021). Influence of Pesticides on Increasing Soil Radioactivity. World, 6(4), 49-54.

19. Davronovna, K. M., Sadriddinovich, E. S., & Yigitali Jo'ra o'g, J. (2022). Dependence of Karst Processes on Physico-Chemical Properties of Salts. American Journal of Social and Humanitarian Research, 3(9), 25-28.
20. Eshkoraev, S., Abdulhamidova, H., & Javgashev, Y. (2022). INGREDIENT OF PORTLAND CEMENT. International Bulletin of Applied Science and Technology, 2(9), 21-23.
21. Shaimanova, R. (2022). Manufacturing of Chipboard from Local Cane Material. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 2(12), 92-94.
22. Шайманова, Р. (2022). PRODUCTION OF CHIPBOARD MATERIAL FROM LOCAL RAW MATERIALS. Eurasian Journal of Academic Research, 2(13), 328-330.