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TRANSGENIC ANIMALS: CURRENT STATE OF RESEARCH AND PROSPECTS*

Keywords: transgenic animals, biotechnology, recombinant DNA techniques.

The technology of creating these animals is one of the most rapidly developing biotechnologies in the last ten years. Transgenic animals are widely used for solving theoretical problems and practical purposes, mostly for biomedicine and agriculture.

A Transgenic animal refers to an animal whose genome has been purposefully modified by direct human interference to achieve a specific phenotypic goal. This method involves the introduction of foreign DNA into animals using recombinant DNA techniques [1]. Usually, animal modifications are done for specific purposes, or instance, in medicine, like transgenic mouse models, which are used for cancer researches, producing human hormones, vaccines, and human tissues. Also, animals are designed purposely for agricultural and economic output like fast-growing salmon to supplement existing production capacities. They are also sometimes created for aesthetics, like creating animals that glow in the dark as well as other purposes. Whatever the purpose of creating such exotic organisms, human curiosity, and capacity to modify life itself is here to stay [2, 3].

Although the technique provides beneficial experiments to researches, there are potential risks when creating transgenic animals. Therefore there is a need to establish regulations in order to keep human and animal welfare and reduce possible environmental issues.

Thus, we looked into the benefits and useful achievements of this technology during the years .Also, the disadvantages for humans, animals, and nature are written. The promises and limitations of creating transgenic animals, as well as the rules and regulations guiding this very sensitive scientific endeavor in developed countries, are reviewed. In the end, the possible problems that may arise in the future, given that if the production of those creatures is out of control, are presented.

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INFLUENCE OF CULTIVATION CONDITIONS AND YEAST STRAIN ON THE CONTENT OF MANNAN POLYSACCHARIDE IN CELLS

Keywords: Mannan polysaccharides, S. cerevisiae yeast, biological properties, cell wall, physiological activity.

Mannan is a polysaccharide widely distributed in nature, which consists of mannose residues linked by β (1–4) bonds [1]. It is obtained from various sources, such as plants, bacteria, fungi, and yeast [2]. The mannan polysaccharide has attractive biological properties, which has expanded its application in many sectors, especially in the field of nutrition and medicine [3].

Recently, there is an increasing focus on yeast cell wall as a source of mannan since it is a cheap by-product that is produced in large amounts in breweries [4].

The mannan content in yeast cells varies depending on many factors, including the physiological state of the yeast, the yeast strain, and the cultivation conditions. In this context, this research aimed to investigate the influence of cultivation conditions and the role of the yeast strains on the content of mannan in yeast cells [5].

Two strains of *S. cerevisiae* were used in this study, which cultivated using two cultivation methods. The mannan content was determined at different stages of yeast growth. According to the obtained results, the highest mannan content was found in