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Production and stability of pigment by Yarrowia

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Nowadays there is a great interest of the market for the natural pigments. Yarrowia lipolytica is one of the pigment-producing microorganisms capable of producing a brown color pigment called piomelanin. Melanins have broad area of application, mainly in agriculture, cosmetics and pharmaceutical industry. In this research, two strains of Y. divulgata and two strains of Y. lipolytica were examined for pigment production, focusing on the inoculation technology. The stability of the pigment produced were also investigated under different environmental conditions (temperature, light). The amount of pigments was monitored by spectrophotometer at 400 nm. During optimisation of inoculation the amount and age of the inoculum were determined. Comparing three different amounts (106, 5 * 106, 107) for each strain, it can be concluded that there was no significant difference between the species and the effect of inoculation volume was also variable. The effect of the age of the inoculum (16h, 24h, 48h) on pigment production showed that the older the inoculum, the more efficient the dye production, for most strains. The pigments produced are stable for months in case of all examined strain, whether stored at cold or room temperature or in light or dark. The stability of the produced dye during boiling for 30 minutes as well as freezing was examined for all four strains. it can be clearly established that there was no significant difference between the samples and the pigments proved to be stable during boiling. During freezing, the samples were kept in the freezer for months, according to the results of the experiment, the dye proved to be stable for months.