

STUDIES ON BIOENERGETIC TRANSFORMATION OF MOLASSES POLLUTANT TO ETHANOL BY SACCHAROMYCES CEREVISIAE NCIM-2086 EXPOSED TO DIHYDROCOUMARIN



Dr. Ravi Ranjan

S.R.P.S. GOVT. +2 School Gardanibagh, Road No-16

Patna, India

ABSTRACT

Coumarins owe their class name to 'coumarou', the vernacular name of the tonka bean (*Dipteryx odorata* Wild, Fabaceae); From Which coumarin itself was isolated in 1820. Coumarin is classified as a member of the benzopyrone family of compounds, all of which consist of a benzene ring joined to a pyrone ring. The benzopyrones can be subdivided into the benzo-a-pyrones to which the coumarins belong and the benzo-g-pyrones, of which the flavonoids are principal members. Coumarin is a chemical compound which is found naturally in some plants; although it can be synthetically produced as well. It has a distinctive odour. Which has led people to use it as a food additive and ingredient in perfume. Due to concerns about coumarin as a potential liver and kidney toxin; its use as a food additive is heavily restricted, although it is perfectly safe to eat foods which naturally contain the compound. The distinctive sweet odour reminds many people of freshly cut grass or hay and it has been used in perfumes since the late 1800s. In a pure form, this compound has a crystalline structure, and it is said to taste faintly like vanilla. When ingested, it acts as a blood thinner and it also appears to be effective in treating some tumors.

The efficacy of dihydrocoumarin on bioenergetic transformation of molasses pollutant to ethanol by *Saccharomyces cerevisiae* NCIM- 2086 has been assessed. It has been found that the coumarin i.e dihydrocoumarin under trial has stimulatory effect on bioenergetic transformation of molasses pollutant to ethanol by *Saccharomyces cerevisiae* NCIM-2086 and enhances the yield of ethanol to an extent of 7.93103% higher in comparison to control fermentor flasks i.e, 5.35ml/100ml in 46 hours of optimum incubation period 4.8 pH and 32°C temperature with 16% (W/V) molasses solution

Keywords : Molasses, coumarin, alcoholic fermentation, dihydrocoumarin and *Saccharomyces cerevisiae* NCIM- 2086