Electronic Journal of Biotechnology
E-ISSN: 0717-3458
edbiotec@ucv.cl
Pontificia Universidad Católica de Valparaíso
Chile

Rodríguez, Paula; Sierra, Wilson; Rodríguez, Sonia; Menéndez, Pilar
Biotransformation of 1,8-cineole, the main product of Eucalyptus oils
Electronic Journal of Biotechnology, vol. 9, núm. 3, 2006, pp. 232-236
Pontificia Universidad Católica de Valparaíso
Valparaíso, Chile

Abstract

The forest industry in Uruguay has grown considerably during the last decade. Eucalyptus plantations account for 74% of the forested land, with Eucalyptus globulus being the most widely distributed species. This industry is dedicated exclusively to the production of wood without exploiting the by-products (leaves and small branches). Eucalyptus leaves are known to contain important amounts of essential oils composed primarily of 1,8-cineole (1,3,3-trymethyl-2-oxabicyclo[2.2.2]octane). In this work, the biotransformation of 1,8-cineole, is achieved using a native bacterium (Rhodococcus sp.) which was isolated from the soil of Eucalyptus forest. A 98% of bioconversion was achieved. Three different optically pure compounds were obtained, and they were identified as 2-endo-hydroxy-1,8-cineole, 2-exo-hydroxy-1,8-cineole and 2-oxo-1,8-cineole.

Keywords

Biocatalysis,Monoterpenes,Eucalyptus,Green Chemistry