

17th EURO BIOTECHNOLOGY CONGRESS

September 25-27, 2017 Berlin, Germany

Production of the antioxidant ascorbyl palmitate by an innovative process of synthesis and purification

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Ascorbyl palmitate, an antioxidant derived from ascorbic acid, represents a feasible alternative to petrochemical compounds such as BHT, BHA and TBHQ, which are used in the food, pharmaceutical and cosmetic industries. The process developed in this proposal considers an enzymatic synthesis of this compound using commercial lipase novozyme 435 in nonconventional medium at 60°C, achieving 65% conversion. The main advantage is the absence of secondary compounds that occur when this antioxidant is synthesized chemically, making the purification associated with the antioxidant to be simpler and cheaper, unlike the process currently used in the industry, which corresponds to a chemical synthesis. The purification process contemplated in this proposal comprises five-unit operations, considering a stage of recovery of the solvents used, to be a more environmental friendly process. The ascorbyl palmitate obtained from this process meets the quality standards necessary for its use at industrial level, since it is contemplated the use of solvents allowed by FAO in the manufacture of food additives, in addition to achieving a high purity, over 99%. Therefore, the process developed to obtain this antioxidant represents a highly competitive alternative at the industrial level.

Biography

Ronald Skewes is a Biochemical Engineer and Bachelor in Engineering Sciences from Pontifical University Catholic of Valparaiso, Chile. He is co-founder of in-Biotech Spa, a small company dedicated to the research and development of biotechnological projects. This company comes from project VIU 15E0095 Production of the antioxidant ascorbyl palmitate through an innovative process of synthesis and purification.

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