THE LIFE EQUATION OF ANIMALS

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Prediction of residual life of living creatures is a challenging task. Presented in this paper is an analysis of the residual life of animals which are useful to different professions in the medical and insurance industry. Our study characterizes key quantitatively life expectancy pattern parameters of heartbeat, respiration rate and blood pressure and proposes a direct fundamental equation to predict animal life. Extensions of this study finds usage for life risk analysis, health management information systems for governments, and waste food to fuel conversions for power generation and in decisions for promoting environmental welfare.

OPTIMIZATION OF DEVULCANIZATION PROCESS OF WASTE RUBBER PRODUCT BY THIOBACILLUS FERROOXIDANS

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Vulcanized rubber is one of the most huge and serious waste product sources in Malaysia. The present data on rubber waste shows that the rubber wastes consist of mainly scrap tires. With a large percentage of 65% of the total annual production of rubber, waste tire is one of the most significant environmental and waste storage problems. On top of that, the waste tire creates large fire and safety problems for those that live in the surrounding area of these stockpiles. Devulcanization is one of the methods that come into consideration. The process of devulcanization involves treating rubber in granular form with devulcanizing agents in order to produce reclaim rubber, a type of recycled rubber that can be added to virgin rubber or remolded into other products. Devulcanization has the advantage of making the rubber suitable for being reformulated and recurred into new rubber articles to produce reclaimed rubber, if it can be carried out without degradation of the rubber. In other words, the rubber could again be used for its original intended purpose. However, none of the devulcanization techniques previously developed have proven to be commercially practical. This project emphasizes on enzymatic devulcanization approach. Thiobacillus ferroxidans, a tetrathionate hydrolase releasing bacteria will be used in this project to devulcanize rubber crumbs made from waste rubber tyre. Compared to other means of devulcanization, the use of biotreatment provides a process and product which can be operated on an economical basis at a commercial scale since the biological organism itself is a renewable, regenerating resource. Enzymatic devulcanization also does not result in the production of environmentally unacceptable waste products or emissions.

Keywords: devulcanization, Thiobacillus ferroxidans, tetrathionate hydrolase, optimization, rubber waste.

ENANTIOMER SEPARATION THROUGH MEMBRANE-BASED APPROACHES: A REVIEW

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The development of single-enantiomer drug from racemate chiral drugs is a challenging field in pharmaceutical industries which has opened a new market strategy for pharmaceutical firms. In this review, two types of membrane-based approaches for separation of chiral drugs are highlighted which are Supported Liquid Membrane (SLM) and Enzymatic Membrane Reactor (EMR). The present overview attempts to cover the current review in separation of chiral drugs and some understanding of the advantages of using these methods.

Keywords: Chiral drugs, racemic switch, Supported Liquid Membrane (SLM) and Enzymatic Membrane Reactor (EMR)