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P116

**DECISION SUPPORT SYSTEM FOR DESIGNING
BIODEGRADABLE PACKAGING FOR FRESH PRODUCE:
A KNOWLEDGE ENGINEERING APPROACH**

Patrice Buche, Valérie Guillard*, Carole Guillaume, Nathalie Gontard, Luc Menut

*Joint Research Unit: Agropolymers Engineering and Emerging Technologies UMR 1208 IATE UM2, CIRAD, INRA,
Montpellier SupAgro*

Abstract

There is a growing trend for governmental efforts to promote health benefits of fresh foods, despite their short shelf life. Beyond respect of the chill chain, modified atmosphere packaging is an efficient way to delay senescence and spoilage without using controversial preservatives compounds. It can be achieved by matching the film permeation rate with the respiration rate of respiring products. In addition, the choice or design of packaging for fresh foods must take into account numerous other factors such as the cost, availability, potential contaminants of raw materials, process ability, preferences of consumer, waste management constraints etc. This is especially important when developing biodegradable packaging.

In the EcoBioCap project, knowledge engineering method and tools are designed to store, share and use information regarding packaging material and to solve the dilemma of multi-criteria demands. Databases gathering most of the relevant information as regard fresh produce and packaging material are currently developed and used in connexion with the Tailorpack software (www.tailorpack.com) that has been developed to design passive MAP.

A specific methodology has been developed to query those databases when user's preferences are bipolar (i.e., express both constraints and wishes about the desired result). Results are then completely ordered with respect to these bipolar preferences, giving priority to constraints over wishes. This approach has permitted to build a Decision Support System for designing biodegradable packaging for fresh produces. This decision making tool will be useful for the development of new added-value materials for food packaging application from locally available and poorly valorised solid by-products and liquid effluents.
