Technology offer

Foils for food packaging with superior antimicrobial and antioxidant properties with minimized oxygen permeability

Field of use

Active packaging, coatings, Foil, fils, Plastic bags

Current state of technology

Stage of Development: Available for demonstration

Patent status

EPO patent pending

Developed by

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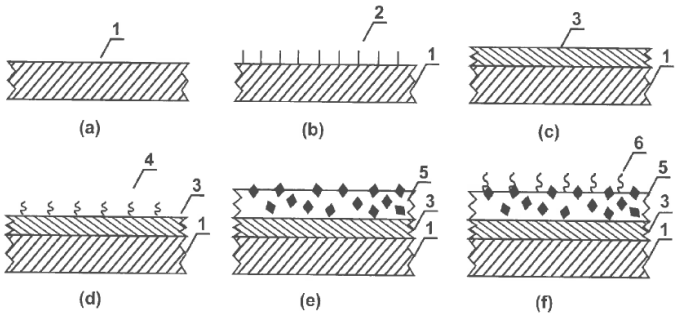
Photo



Background

Bioactive and biodegradable packaging is showing high growth due to rising awareness for ecology and food safety of fresh and minimally processed foods. Food safety and quality may be improved by antimicrobial and antioxidative packaging systems nanofuncionalised with natural (bio)-active agents.

Description of the invention

The present invention relates to methods for synthesizing foils for food packaging. The superior properties of the foils ar achieved by pre-treatment of said foils with atomic oxygen and subsequent deposition of coatings with a thin film of chitosan and a macromolecular film coating a network of polyphenol, catechin or pomegranate extract as effective substances and chitosan nanoparticles. The foils produced according to the methods of invention exhibit over 90% reduction of Staphylococcus aureus as compared to untreated foils, reduction of oxygen permeabillity for over 90% and increase o fan natioxidant activity for over a factor 10. The mthnod is useful in different applications where such properties of foils are desired. Exemplary usage is for packaging of food such as meet, vegetables, dairy and bakery products, pharmacy packaging etc.

Main advantages

- A new synergistic formulation of polysaccharides and phenols as a film coating on film.
- The coating technology and plasma pre-activation gives optimal foil properties such as antimicrobials, antioxidants and good barrier properties for oxygen, which is a key value in packaging.