“Multi-substituted phenyl polymers from natural materials”

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Technology description

This invention incorporates a process of "green chemistry" for the production of multisubstituted phenyl polymers and the resulting polymers. The process consists in the enzymatic polymerization of gallic acid – contained in oak bark and tea leaves - by oxidoreductases from plant or fungal extracts. The resulting polymers are biocompatible, non-toxic, environmentally friendly and antioxidants.

Applications, usage and benefits of the technology

The process object of this invention is environmentally friendly because it does not require toxic catalysts, as well as being simple and efficient.

For their part the polymers resulting from this process can be used in the preservation of food or pharmaceutical products, as well as in the manufacturing of electronic circuits in thermal processes.

In the same way, polymers related to this invention have the ability to modify superficial energy between two phases; modify the surface tension of liquids and modify the adhesion between incompatible surfaces.

This technology has potential for application in the automotive and pharmaceutical industry, consumer electronics and manufacturers of "intelligent" food packaging, medicines and other consumer items.

Technology readiness Level

Polymers obtained at laboratory scale. The inventors are researching new applications of such polymers.

Market information

Although the polymer is being considered as a natural antioxidant with high solubility in water, it is necessary to conduct research for specific applications in different potential sectors.