

Portuguese plants and fruits - Their medicinal properties and applications in nutraceutical (biodegradable films preparation for food packaging) industries

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The antioxidant agents of the plants and super fruits can react with the biologically harmful free radicals generated by oxidative and lipid peroxidation reactions in cells. The potentials health benefits of the medicinal plants and super fruits depends on their species; plants parts used; bioactive compounds availability and etc. Therefore, regarding many detected adverse effects of chemical medicines and the lack of medicines in the treatment of the diseases, discovering, characterisation and isolation of novel compounds from natural sources particularly from medicinal plants and super fruits could open novel doors in the treatment of not only the acute diseases but also chronic diseases including *Alzheimer's disease*, diabetes, *Parkinson*, carcinogenic cells as well as acting against microbial agents. The Portuguese plants would be selected based on the collected information from local residents who believe in their medicinal activities. The picked plants would be tested for their potential health benefits via *in vitro* experiments. The potent plants' extracts would be analysed by GC-MS and LC-MS for characterisation of the predominant compounds. The achieved extracts of the potent plants would be applied in preparation of biodegradable films for application in nutraceutical industries and further studies would be performed on the prepared films. Finally, biodegradable film preparation will be optimized via three different predictive tools including response surface methodology, artificial neural network and adaptive neuro fuzzy inference system.

