

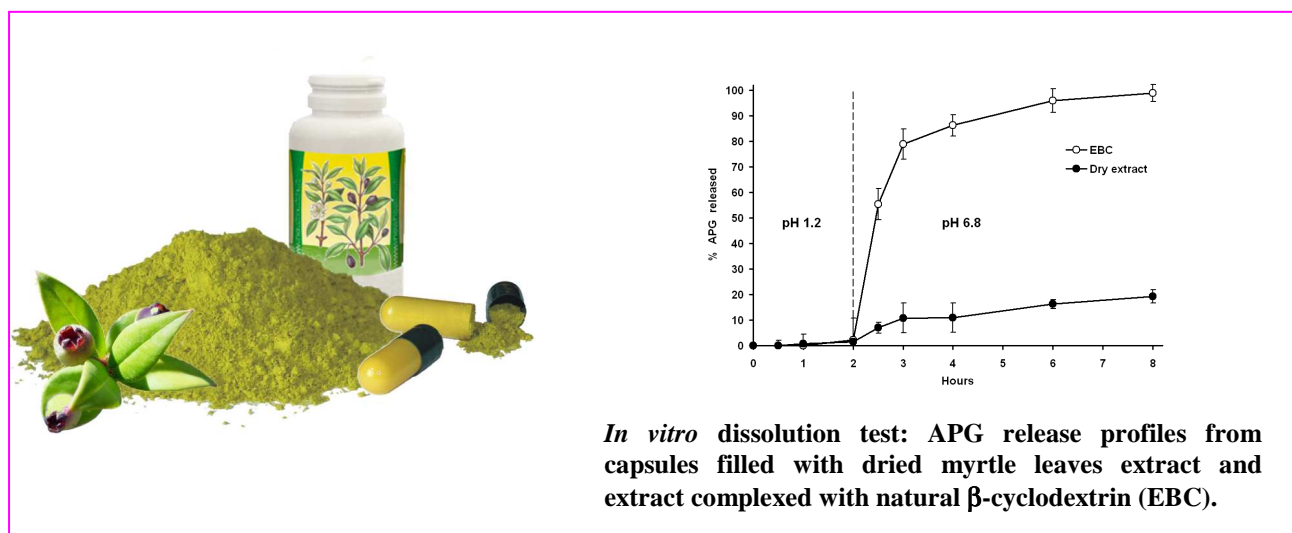
Capsules based on *Myrtus communis* leaves extract as new diet supplement with potential antiatherogenic activity

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The bioactive phytochemicals have become a very significant source for nutraceutical ingredients. Nutraceuticals are diet supplements that deliver a concentrated form of a presumed bioactive agent from a food, presented in a non-food matrix, and used with the purpose of human enhancing health in dosages that exceed those that could be obtained from normal foods. Most commercially available nutraceuticals contain a mixture of compounds since they are usually prepared from raw extracts from different food products.

Myrtle (*Myrtus communis* L.) leaves contains unique oligomeric, nonprenylated acylphloroglucinols (APG) such as myrtucommulone (MC) and semimyrtucommulone (S-MC). Recent studies shown that these compounds have marked antioxidant activity during the oxidative modification of lipid molecules implicated in the onset of cardiovascular diseases such as LDL, cholesterol and unsaturated fatty acids.

It is here described a new diet supplement with potential antiatherogenic activity. In particular capsules based on *Myrtus communis* leaves extract, with high APG content, complexed with natural β -cyclodextrin were prepared.



1. Description of the product

Capsules were filled with powder obtained by complexing the myrtle leaves dried extract, with high APG content, with natural β -cyclodextrin.

Capsules are designed as controlled release nutraceutical product such as dietary supplements with potential health benefits, delivered in a medicinal form; controlled release formulation is able to target the APG to the intestinal tract.

2. Innovative aspect of the product

Constituents of *Myrtus communis* leaves extract are known to have various pharmacological activities: they exert powerful antibacterial and anti-inflammatory activity and protective effects during the linoleic acid oxidation, inhibit oxidative stress on cell cultures and lipid peroxidation in rat liver homogenates and antioxidant activity during the oxidative modification of lipid molecules implicated in the onset of cardiovascular diseases has also been reported. Thus, Myrtle leaves can be a good candidate for the development of nutraceutical formulations.

The product obtained is characterized by high APG content (about 25.0 mg per capsule). Actually there are not similar product in the market based on *Myrtus communis* leaves extract containing a so elevated APG content. The complexation with cyclodextrin increase APG solubility which is crucial to improve their bioavailability. Finally, controlled release capsules designed are able to target the APG to the intestinal tract.

3. Main advantages of the offer

Marketing studies carried out by diverse industries have shown the consumers' increasing demand for health-promoting food products as well as for non-food products (i.e. dietetics and pharmaceuticals) containing the active principles present in these health-promoting foods. This product uses natural ingredients coming from the Mediterranean flora and thus easily available and making also valuable the resources of territory. Moreover, the activity of components (APG) permits to include this product into the category of diet supplement based on steroli and/or polyunsaturated fatty acids, widening diffused, with a good compliance by consumers and whose it can be proposed as valid alternative.

We have realized a powder containing myrtle leaves extract complexed with natural β -cyclodextrin in order to increase the dissolution rate and bioavailability of APG administered by simple and low cost dosage form such as capsules. This powder has properties suitable to be used as an intermediate in the preparation of single dose solid pharmaceutical without using other excipients. β -cyclodextrin influences positively the technological and biopharmaceutical properties of powder; furthermore it is natural and low cost material already included in formulations aimed to oral administration.

4. Technology key words

Nutraceutical, vegetal extract, controlled release, capsules, β -cyclodextrin.

5. Current Stage of Development

Development phase – laboratory tested; Available for demonstration – field tested

6. Intellectual Property Rights

The product is not covered by patent.

Technical and scientific publications

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