

ABSTRACT

An investigation presented was concern in development of a practically usable topical gel having incorporated the plant extracts containing flavonoids and polyphenols to stabilize the formulation. The functional stability of this plant extract before and after stability tests were evaluated using the stable free radical 1,1-diphenyl-2-picrylhydrazyl (DPPH•) assays.

A theoretical part of the thesis briefly summarizes basics about semisolid formulations focused in gels, namely carbomers, and the use of the topical formulation possessing antioxidant activity.

An evaluation of the physical stability by texture analysis, temperature cycling test, centrifugation, change in colour, vibration and photostability test as well as functional stability (DPPH•) is also included in this part.

An experimental part describes the techniques of determination of the total amount of phenolic compounds, preparation of the final formulation and evaluation of the influence of titanium dioxide and concentration of carbomer on texture properties and pH. Excepting texture analysis, determination of the physical stability was mostly performed with a visual evaluation, functional stability was determined with DPPH methodology.

The results show high antioxidant activity of the extract and ability to use it for topical formulations. The final formulation which has been submitted to physical and functional testing was shown to be stable in all test except the photostability parameter.