

Preparation of cosmetic raw materials from oilseed cakes

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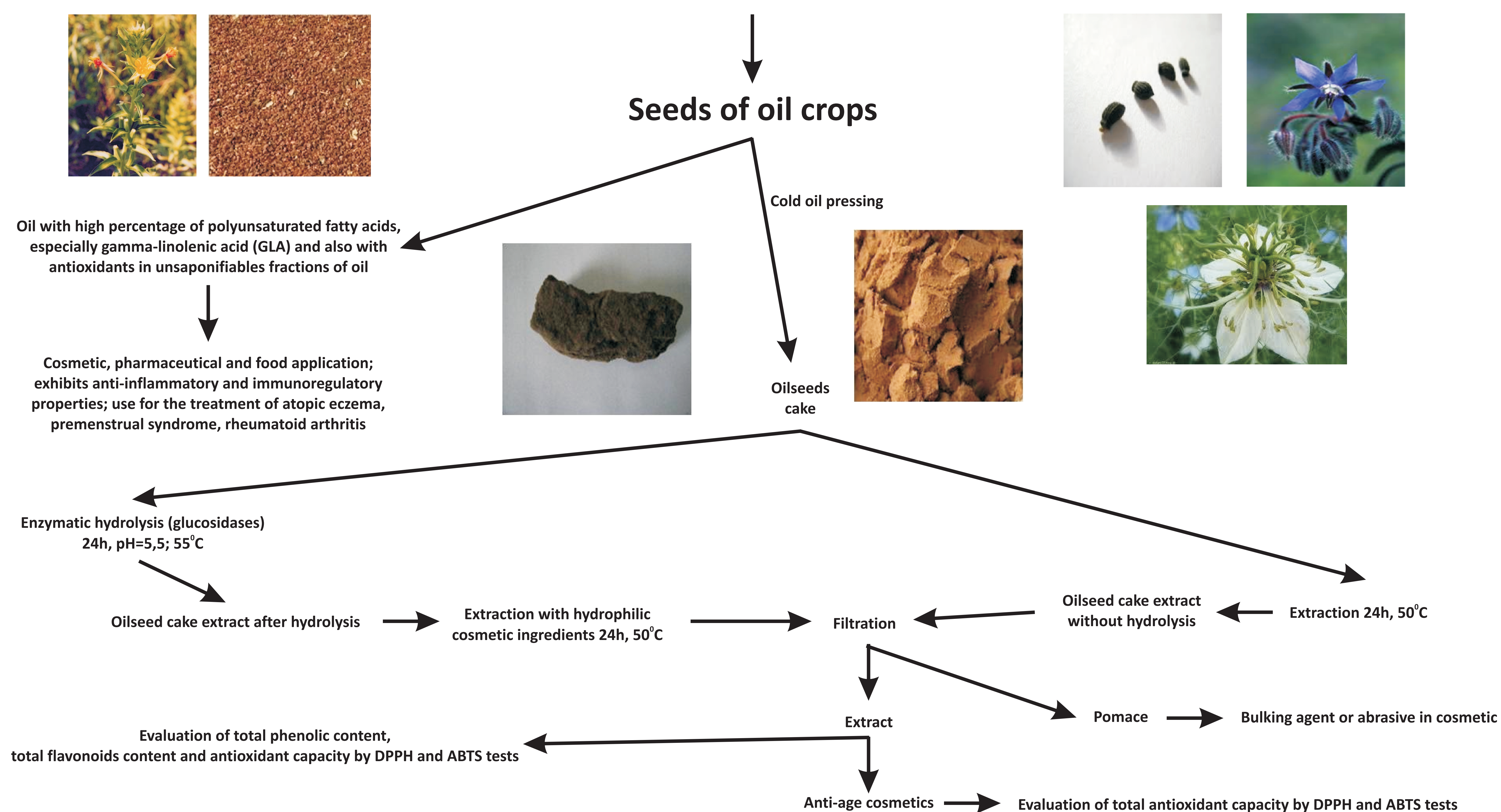
SCIENCE & RESEARCH

Introduction

Evening primrose (*Oenothera biennis*), starflower (*Borago officinalis*) and black cumin (*Nigella sativa*) are a major sources of gamma-linolenic acid and the potential beneficial effects of *Oenothera biennis* and *Borago officinalis* oil as a skin barrier regenerating and anti-inflammatory agents are well recognized in cosmetology and dermatology. However, the defatted seed (oilseed cake) after oil extraction remains largely unutilized even though it is a potential source of phenolic antioxidants for use in cosmetic application. These phenolic compounds presents in oilseed cakes of evening primrose, starflower and black cumin are catechin, epicatechin gallate, gallic acid, ellagic acid, caffeic acid, quercetin and others, which can be extracted using different solvents and extraction methods.

Materials and methods

Oil plants *Oenothera biennis*, *Borago officinalis*, *Nigella sativa*



Results

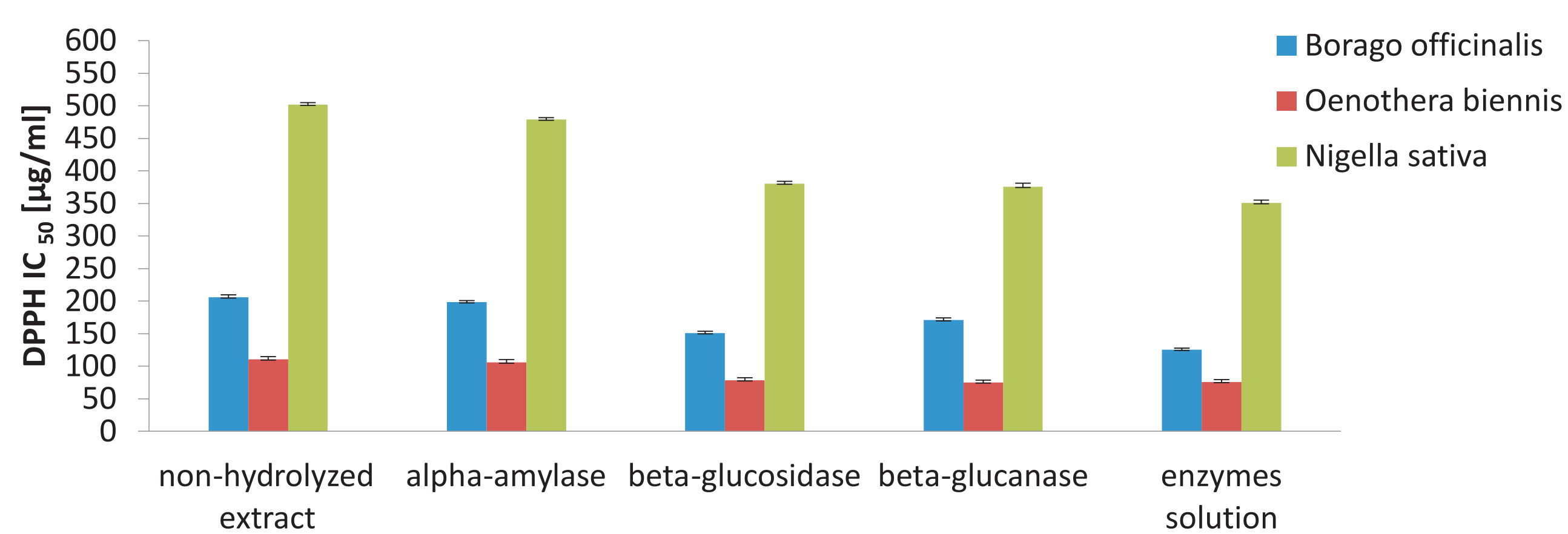


Fig. 1. Change of DPPH free radical-scavenging capacity of *Oenothera biennis*, *Borago officinalis*, *Nigella sativa* seedcake extracts. Data present the mean±standard deviation of three independent experiments, each performed in triplicate, p<0.05. IC₅₀ values were obtained from dose effect curves by linear regression.

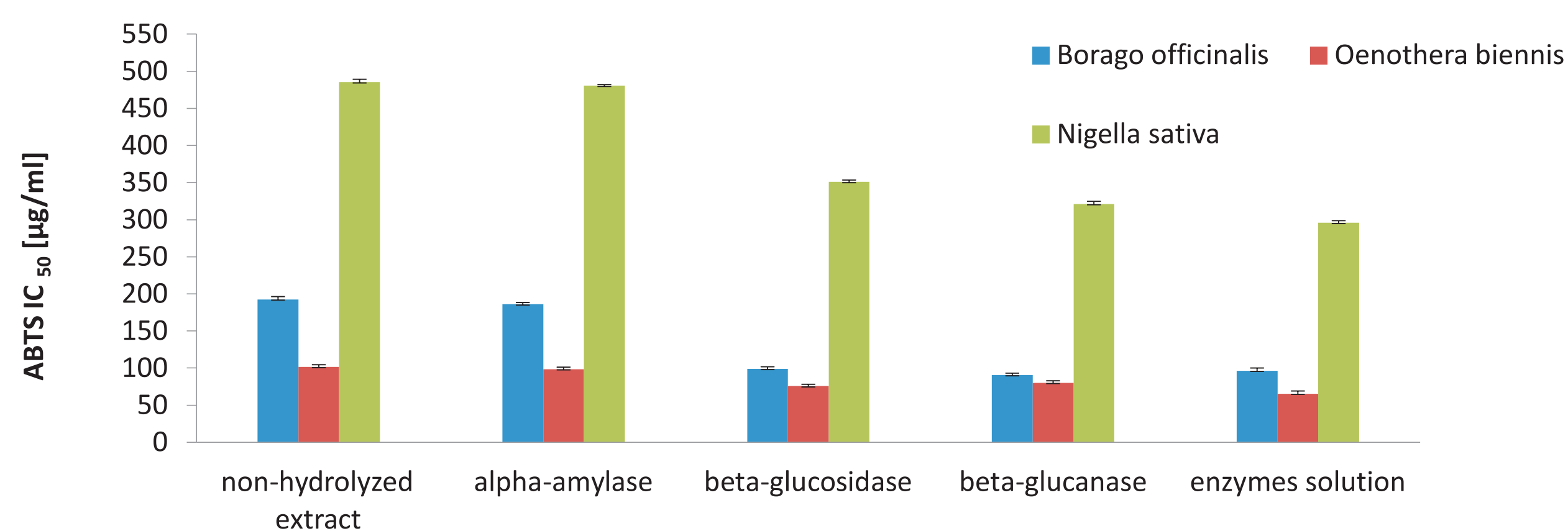


Fig. 2. Change of ABTS free radical-scavenging capacity of *Oenothera biennis*, *Borago officinalis*, *Nigella sativa* seedcake extracts. Data present the mean±standard deviation of three independent experiments, each performed in triplicate, p<0.05. IC₅₀ values were obtained from dose effect curves by linear regression.

Conclusion

Vegetable oils production wastes are widely used in animal feeding on account of high level of proteins, flavonoids and other actives. Attempts made to apply them in cosmetology did not give satisfying results so far, i.e. despite of technological problems with the separation of active ingredients. We conducted research on the separation of antiradical compounds, especially polyphenols, from various cold-pressed oilseeds cakes. Developed methods enable direct production of ready to use cosmetic raw materials of high antioxidative activity. We found that antiradical activity of obtained products depends, to a large extent, on the glycoside-aglycone ratio in the starting material. It is possible to improve effectively the quality of the raw material obtained in this way by biotechnological methods.

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