



Comparative Analysis of Thymoquinone Content and Nutritional Profiles in Healthy Products containing black cumin seed oil in the Thai Market

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ABSTRACT

Background – Black cumin seed oil (BCSO) is a renowned herbal and prophetic remedy, celebrated for its diverse health benefits due to its bioactive compounds, particularly thymoquinone. In the Thai market, black cumin seed oil is available in various forms, including cold-pressed oil capsules, sprays, salad dressings, and peanut butter. Despite its popularity, comparative studies on the nutritional value and functionality of these products remain limited.

Purpose – This study aimed to evaluate the functionality and nutritional values of healthy products containing black cumin seed oil in the Thai market, with a focus on their thymoquinone content, fatty acid profiles, and antioxidant activity.

Design/methodology/approach – Thymoquinone content was quantified using high-performance liquid chromatography (HPLC), fatty acid profiles were determined using gas chromatography (GC), and antioxidant activity was assessed via spectrophotometry.

Findings – The salad dressing containing BCSO exhibited the highest thymoquinone content (1802.55 ppm) and the highest linolenic acid levels among the tested products. Cold-pressed BCSO had the highest linoleic acid content (34.01%). All products demonstrated a high polyunsaturated fat content, ranging from 76.78% to 81.74%. Antioxidant activity, measured as % inhibition, was consistently high across all products, ranging from 81.3% to 84.3%.

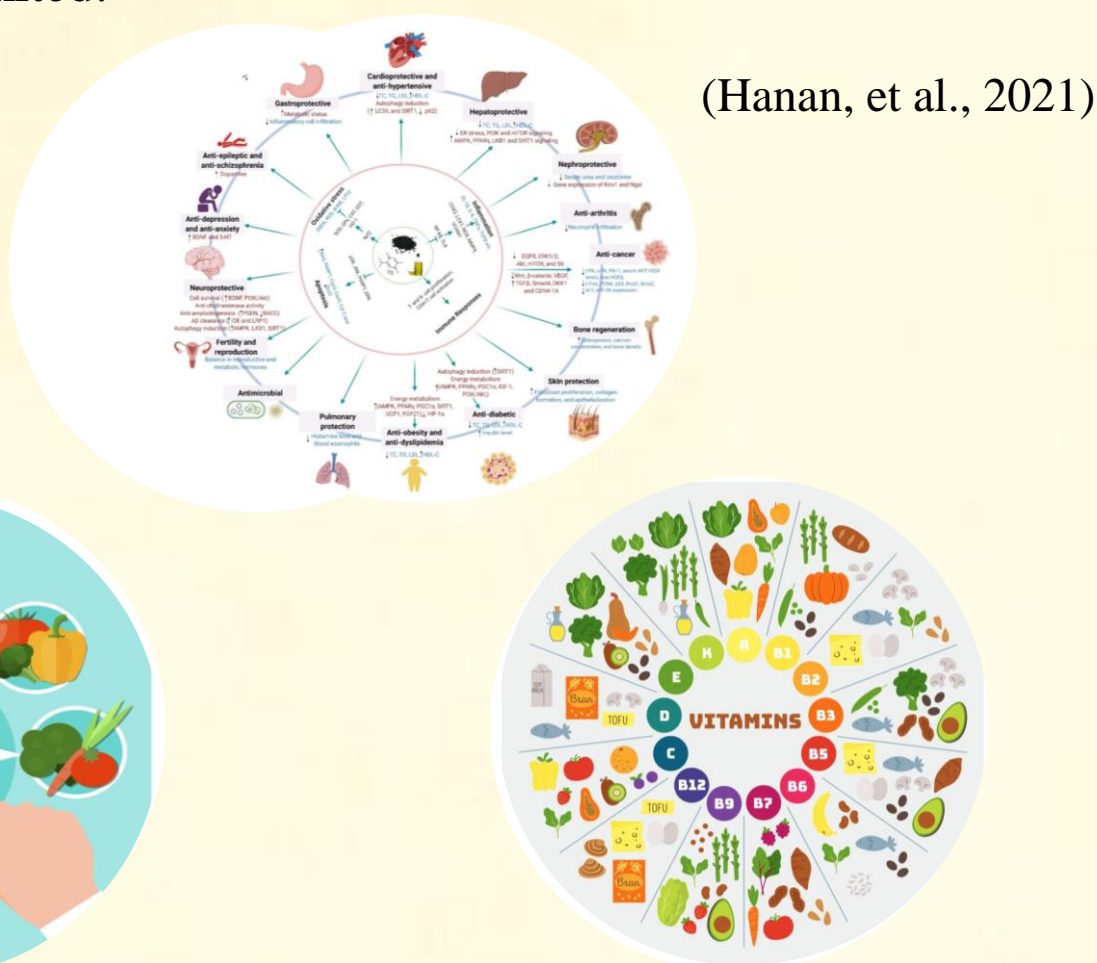
Research limitations – This study focused on a limited range of commercially available BCSO products in the Thai market. Further research should explore a broader variety of formulations and consider additional bioactive compounds and sensory evaluations.

Originality/value – This research provides a comprehensive comparative analysis of BCSO products available in the Thai market, highlighting their nutritional and functional attributes, and underscores the potential of salad dressing as a superior delivery medium for thymoquinone and other health-promoting components.

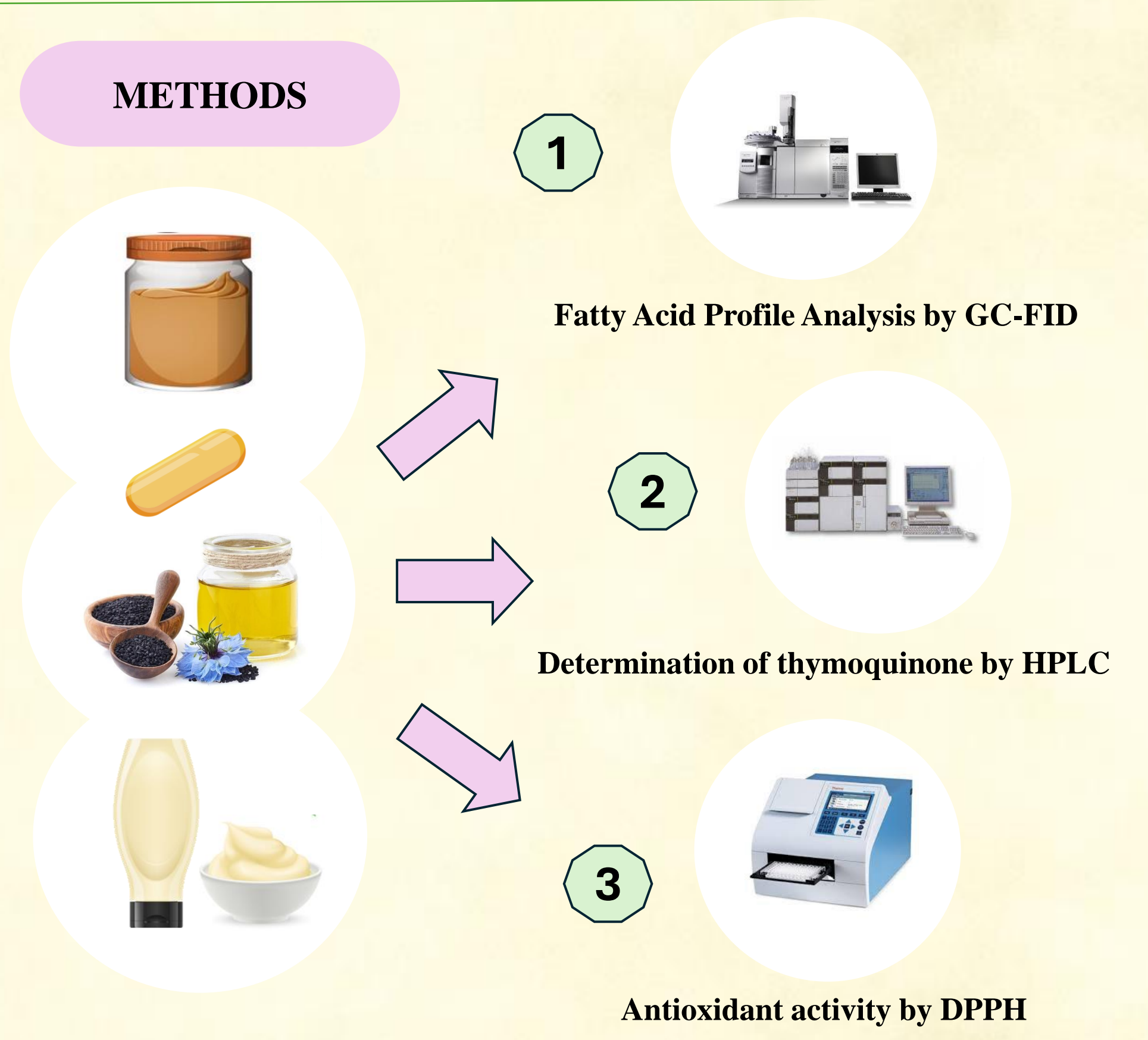
Keywords: *Thymoquinone, Prophetic medicine, Functional food, Thai Markets*

INTRODUCTION

Black cumin seed oil (BCSO) is a renowned herbal and prophetic remedy, celebrated for its diverse health benefits due to its bioactive compounds, particularly thymoquinone (Hanan, et al., 2021). In Thailand, the functional food market has experienced rapid growth, driven by increasing consumer awareness of health and wellness. BCSO has gained traction as a key ingredient in Thai Muslim market. Despite its popularity, comparative studies on the nutritional value and functionality of these products remain limited.



METHODS



RESULTS

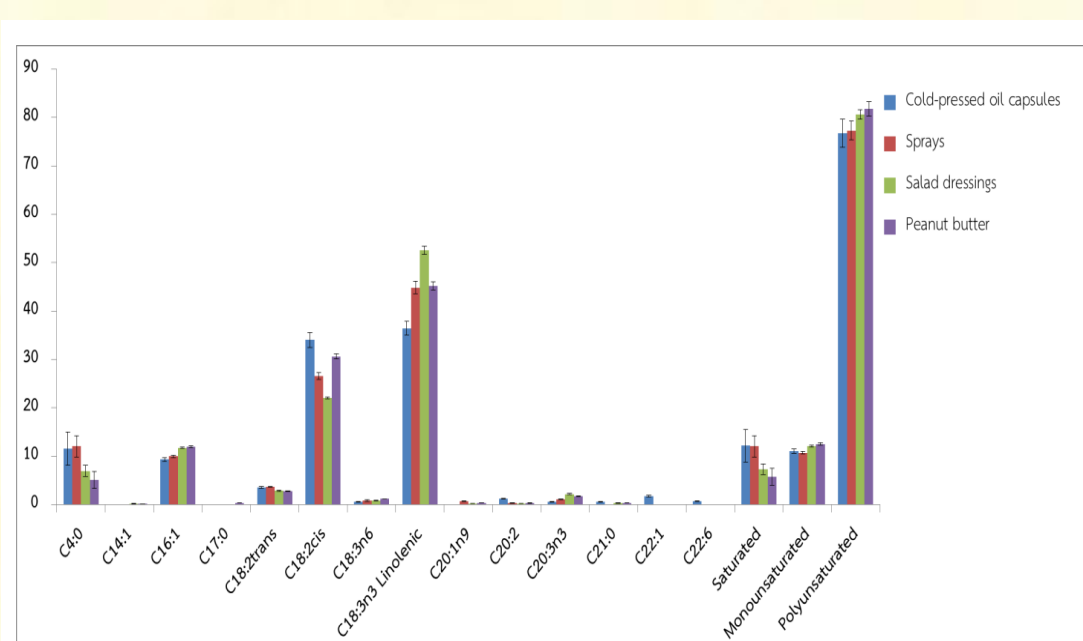


Figure 1. The fatty acid profiles of cold-pressed oil capsules, sprays, salad dressings, and peanut butter.

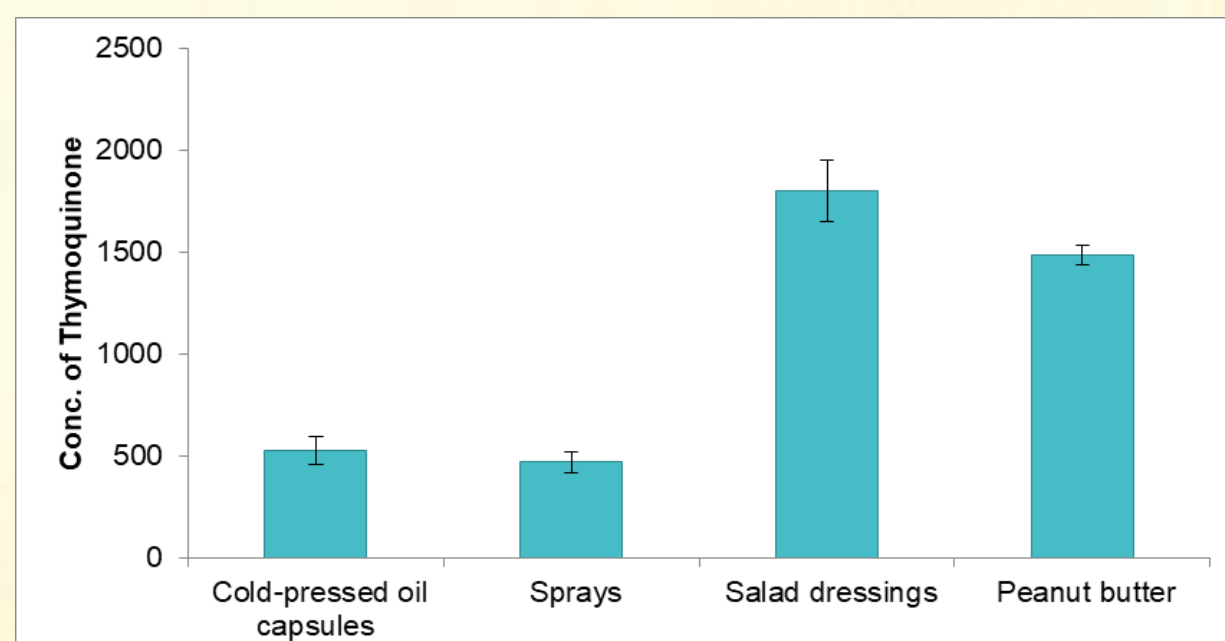


Figure 2. The Concentration of Thymoquinone of cold-pressed oil capsules, sprays, salad dressings, and peanut butter.

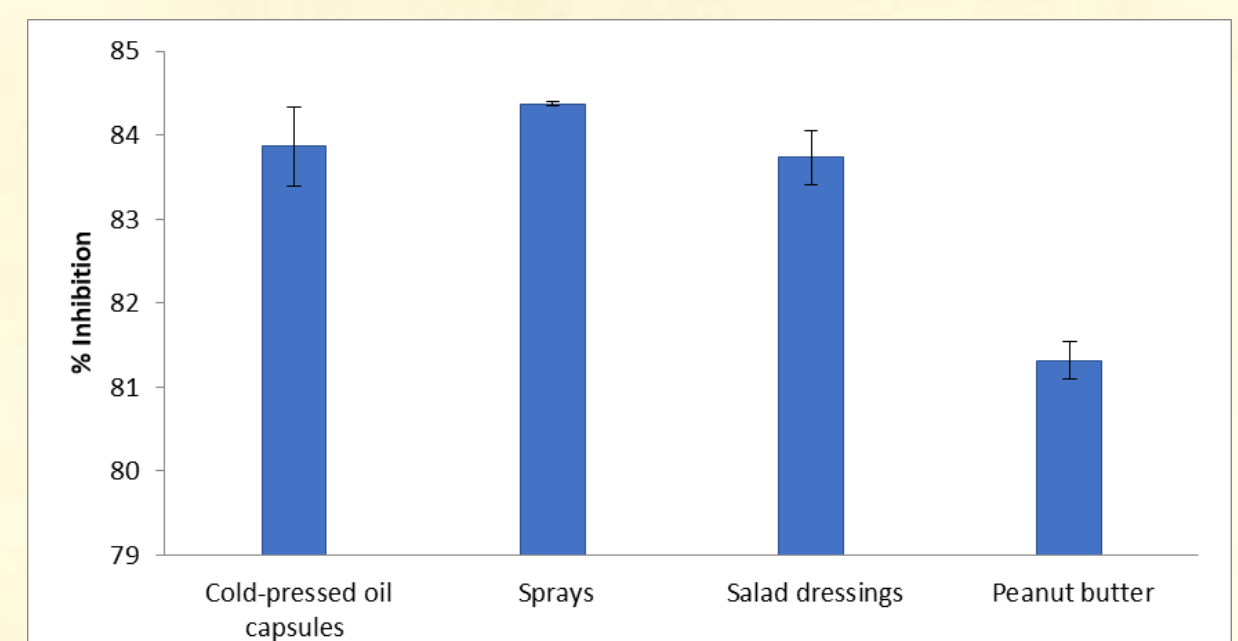


Figure 3. The % Inhibition of cold-pressed oil capsules, sprays, salad dressings, and peanut butter.

CONCLUSION

This study provides a comprehensive comparative analysis of BCSO products available in the Thai market. Among the tested products, salad dressing demonstrated the highest thymoquinone content and superior functional attributes, making it a promising product for delivering the health benefits of BCSO. Cold-pressed oil capsules and sprays also showed potential but require further optimization to enhance their nutritional and functional profiles. Future research should expand the scope of this study by including a broader range of products and conducting sensory evaluations to better understand consumer preferences.

REFERENCE

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