The influence of carotenoid and chlorophyll content on the oxidative processes in the selected vegetable oils

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A- Conception and study design; **B -** Collection of data; **C -** Data analysis; **D -** Writing the paper;
E- Review article; **F** - Approval of the final version of the article; **G** - Other (please specify)
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ABSTRACT
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Purpose: More than 100 plant species have been classified as oil products, but only a few of them are used in industrial production. In the available literature, there are no studies that would describe the relationship between the content of plant dyes and their impact on auto-oxidative processes. Therefore, this study aimed to determine dye composition and to define their effect on the acid value, peroxide value and quality assessment of selected refined and unrefined oils.

Materials and methods: Twenty samples from different manufacturers were evaluated. Oils were purchased from retail trade of the Bialystok city. The total colour, acid, and peroxide values were determined in accordance with the Polish Standards PN-ISO 3960: 1996, PN-A-86934: 1995 and PN-ISO 3960: 1996, respectively.

Results: Statistically significant differences of total colour values between both groups were found (p=0.002). The acid value of refined oils was lower than in an unrefined group (p=0.02). A positive statistically significant correlation was noticed between the total colour value and the acid value in the refined group (R=0.65, p=0.04). No significant effect of plant dyes on the acid or peroxide value of unrefined oils was observed.

Conclusions: Refined and unrefined oils purchased in the city of Bialystok mostly met the standard values with the exception of cold-pressed oil from black cumin seeds, where the acid and peroxide value exceeded the values set in *Codex Alimentarius.*

Keywords: Vegetable oils, total colour, acid number, peroxide number

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