

# BLACK CURRANT SEEDS A SOURCE OF BIOACTIVE COMPOUNDS WITH PROFOUND HEALTH BENEFITS

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Blackcurrant seeds emerge as residual by-products following berry processing. Typically disregarded in the industry and discarded alongside other berry waste, recent research over the last decade has compelled scientists to reevaluate these seeds as a potential source of valuable bioactive compounds. Following the chemical composition research conducted using standard methodology, it was revealed that the seeds consist of 18.29 % fats, 16.77 % proteins, and 58.68 % carbohydrates. The remaining percentages account for moisture and mineral substances. In particular, a substantial portion of the carbohydrates is attributed to dietary fiber, averaging 51.84 g per 100 g of seeds, with total fermentable sugars determined at 4.9 g per 100 g of seeds. The supercritical CO<sub>2</sub> extraction process yielded a lipophilic extract with a 15.66 % yield. The major predominant triacylglycerols (TAG) in the seeds extract were identified as unsaturated LLLn (21.23 ± 0.46 %) and OLnL (20.77 ± 0.28 %). Additionally, the extract was found to be a rich source of  $\alpha$ -tocopherol (537.95 ± 19.79 µg/g) and  $\beta$ -sitosterol (5176.05 ± 189.22 µg/g), both important bioactive compounds. While Gas chromatography coupled with time-of-flight mass spectrometry (GC×GC-TOF/MS) analysis of aroma compounds revealed the presence of various compounds, including hexanal, furfural, and terpenes, the concentrations of these aroma compounds were relatively lower compared to those of blackcurrant peel. The findings collectively demonstrate the high potential of blackcurrant seeds as a valuable source of bioactive compounds for incorporation into sustainable superfood blends or functional food products.

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