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**The anti-inflammatory activity of sinapinic acid containing phenolic extracts from Irish rapeseed meal**

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Rapeseed meal is a low-economic value by-product of rapeseed oil production, which is commonly used as animal feed. However, rapeseed (*Brassica napus* L.) contains more phenolic compounds than any other oilseed plant. Sinapinic (SA) has been identified as a major insoluble phenolic in rapeseed hulls and constitutes 70-90% of soluble esterified phenolic acids in rapeseed meal. Phenolic acids, including SA, have known bioactive properties, including anti-inflammatory activity. As part of this project, two phenolic extracts containing SA were generated from Irish rapeseed meal supplied by Donegal Rapeseed Oil Company, Donegal. The anti-inflammatory activity of the extracts were determined. Quantitative Polymerase Chain Reaction (QPCR) and Enzyme-Linked Immunosorbent Assays (ELISA) were performed using THP-1 cells and human primary monocytes. The anti-inflammatory activities of SA containing extracts I and II were determined using two key inflammatory mediators: TNF-alpha and CXCL8. Extract I significantly increased CXCL8 expression but did not affect TNF-alpha expression. Extract II significantly reduced TNF-alpha expression when assayed at concentrations of 1 and 0.5 mg/ml. Extract II at 1 mg/ml also significantly reduced CXCL8 expression, while significantly increasing CXCL8 gene expression. The anti-inflammatory activity of extract II was also assessed using human monocytes over a period of 3 hours, with 1 mg/ml found to significantly reduce CXCL8 and also reduce TNF-alpha expression. Extracts containing SA from Irish rapeseed meal could be potentially valuable as an anti-inflammatory agent.

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