

## IMPACT OF A BLACKBERRY EXTRACT AND SINGLE ANTHOCYANINS ON THE INFLAMMATORY RESPONSE OF HUMAN MACROPHAGE THP-1 CELLS

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Anthocyanins are considered to be beneficial and may protect from chronic inflammation. Thus, investigations on anthocyanin-rich extracts and single constituents are of great interest.

We investigated a blackberry extract, containing a spectrum of anthocyanins, in comparison to two sub-fractions comprising cyanidin-3-(6"-dioxalylglucoside) and cyanidin-3-(malonylglucoside), respectively, regarding their impact on inflammation-related cytokine expression and secretion in human macrophages.

Relative gene transcription and cytokine secretion of IL-6 and TNF-alpha were measured using qRT-PCR and cytokine bead-based immunoassay, respectively.

The THP-1 monocyte cells served as a cell model to mimic the inflammatory response. Therefore cells were differentiated with phorbol-12-myristate-13-acetate into macrophages which were pre-incubated with physiologically relevant concentrations of blackberry extract or single compounds. Subsequent stimulation with lipopolysaccharides from *E.coli* induced gene transcription and cytokine release.

Cyanidin-3-(malonylglucoside) had no impact on LPS-induced IL6 and TNF-alpha expression. In contrast, the blackberry extract and cyanidin-3-(6"-dioxalylglucoside) caused further stimulatory effects for the transcription and secretion of IL-6 at higher concentrations. The secretion of TNF-alpha was increased as well by both, yet with no impact on the transcript level after 3 h of incubation. The results clearly show that single as well as combinatory effects might be of relevance for the immune-stimulatory impact of the blackberry extract.

Acknowledgements: This research is funded by the ERA-IB AnthoPLUS.