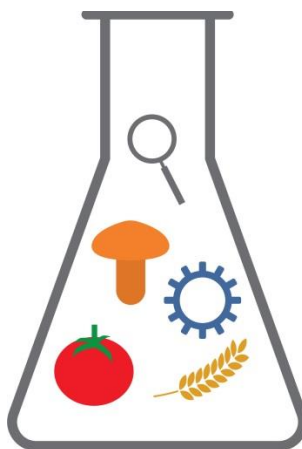




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CAFFEIC ACID MODULATES EXPRESSION OF PROINFLAMMATORY CYTOKINES IN HUMAN TROPHOBLAST CELLS

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One of the crucial processes for human pregnancy establishment is invasion of the extravillous trophoblast cells (EVTs), specific cells of the placenta, into uterus wall. This process is tightly regulated by numerous factors including proinflammatory cytokines secreted by different cells and tissues at feto-maternal interface. Caffeic acid (CA), polyphenolic compound abundantly present in fruits, vegetables, spices and beverages used in everyday diet, exhibits numerous physiological effects including antioxidant and anti-inflammatory activities. Our previous *in vitro* studies on human EVT HTR-8/SVneo cell line showed that CA has a potential to modulate processes important for early pregnancy.

The aim of this study was to further investigate CA effects on trophoblast cells by evaluating expression of proinflammatory cytokines involved in regulation of EVT invasion in HTR-8/SVneo cells. Our results assessed by real-time PCR showed that treatment with both 10 μ M and 100 μ M CA downregulated expression of *TGFB1* and *IL1B* in treated HTR-8/SVneo cells. However, CA upregulated mRNA levels of IL-8 (*CXCL8*) while *CXCR1*, gene coding for IL-8 receptor, was downregulated, concentration-dependently in both cases.

Based on these preliminary results it can be concluded that CA could affect cytokine and chemokine expression in trophoblast cells. Also, it could modulate IL-8 signalling pathway not just by affecting *CXCL8* expression but also expression of its receptor. These results could contribute to revealing molecular mechanisms involved in CA-induced modulation of trophoblast invasion and migration indicated in our previous studies.

Keywords: caffeic acid, trophoblast, cytokines

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