

***Boswellia serrata*: antioxidant and anti-inflammatory activities in epithelial intestinal cells**

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The inflammatory bowel disease (IBD, mainly Crohn's disease and ulcerative colitis) affects more than 4 million people in the world, with a clinical onset typically between 15 and 45 years. Being still unknown the etiopathogenesis of IBD, the current therapeutic choices are focused on the symptomatology of the disease and its complications in order to induce and maintain remission of the disease, thus improving the life quality. To identify natural compounds useful to maintain the state of IBD remission it has been studied the antioxidant activity and anti-inflammatory action of *Boswellia serrata* (BS), in the form of extract of gum-resin (EGR) or only as acetyl-11-keto- β -boswellic acid (AKBA), isolated from the extract. EGR-BS was characterized by HPLC-MS technique. Experiments *in vitro* in cultured intestinal cells (Caco-2, LoVo and HT29) have shown that EGR-BS (0.1 μ g/ml-10 μ g/ml) or AKBA (0.027 μ g/ml equal to 2.7% of 1 μ g/ml of BS) are not cytotoxic after incubation for 24-72 hours. Cell pretreatment for 24h with EGR-BS or AKBA in the presence or absence of H₂O₂ (500 μ M) induced a significant antioxidant activity of about 30% for the concentration of 1 μ g/ml EGRBs. We also evaluated the activity of BS on cellular permeability by measuring TEER (trans-epithelial electrical resistance). The treatment with AKBA and *Boswellia serrata* does not alter the cellular permeability in basal conditions, while it is capable of rescue by about 35% the permeability decrease induced by inflammatory and oxidant stimuli such as H₂O₂, LPS or TNF α . In conclusion, these results demonstrate that BS is able to modulate *in vitro* parameters considered as dysfunction markers in clinical manifestation of IBD. The contribution of this study is part of the panorama of research aimed at elucidating the effectiveness of new herbal medicine strategies for IBD treatment.