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Nutraceuticals in gastrointestinal ailments: An emerging paradigm

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Inflammatory bowel disease (IBD) is a chronic gastrointestinal disorder, of multifactorial origin. The pathogenetic mechanisms consist of immune dysregulation, altered intestinal microflora, oxidative stress, defects in the gastrointestinal mucosal barrier and increased permeability, altered intestinal motility, whose interplay leads to the onset of a state of chronic mucosal inflammation. The drugs for IBD treatment include corticosteroids, immunosuppressants, and anti-tumor necrosis factor (TNF)- α antibodies, and new therapeutic molecules, that increase the risk of opportunistic infections and malignancies. Furthermore, their efficacy decreases over time and highlights the need to identify new molecular targets for IBD therapy. Scientific research aims at identifying tools able to affect several targets, with minimal side effects. Nutraceutical identifies foods, or food phytochemicals, of animal or vegetal origin, with pharmaceutical properties. Many vegetal extracts determine several effects towards the gastrointestinal tract, which may result in clinical benefits in subjects suffering from IBD. *Castanea sativa* Mill. bark extract (ENC), containing high amounts of hydrolyzable tannins, inhibits spasmodic contractions, induced by carbachol, histamine, potassium chloride, and barium chloride in guinea pig ileum and by carbachol or serotonin in guinea pig proximal colon. Furthermore, ENC increases gallbladder contraction and relaxes the sphincter of Oddi, suggesting its chronic administration may result not only in a restoration of gastrointestinal contractility, but also in the prevention of gallstone disease. Also *Acacia catechu* Willd. extract (ACE) was investigated. ACE contains high amounts of catechins, such as (-)-Epicatechin and (+)-Catechin. This extract decreases, in a concentration-dependent manner, colon and ileum spontaneous contractility. In addition, ACE exerts a calcium antagonistic effect, more potent in proximal colon than in ileum. Furthermore, it exhibits antimicrobial effects against *Campylobacter jejuni*, *Escherichia coli*, and *Salmonella* spp., without inhibiting *Bifidobacterium* and *Lactobacillus*. These data support the use of ENC and ACE as co-adjuvant in the treatment of IBD.

Biography

Matteo Micucci has completed his PhD from Bologna University. He is working on Medicinal Chemistry and Nutraceuticals in the Department of Pharmacy and Biotechnology, University of Bologna. He was a Guest Scientist at University of Naples Federico II, in the research group coordinated by Professor Ernesto Fattorusso. He has published 25 papers in reputed journals.

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