

## **Gut bacterial interaction regulates the anti-inflammatory and pro-apoptotic potential of 3-deoxyflavonoids**

### **Abstract**

With healthcare expenses being on the constant rise, dietary modification by inclusion of fruits and vegetables seems like a more cost-effective approach to curtail chronic disorders. Current scientific evidence demonstrates the strong anti-carcinogenic, anti-oxidant and anti-inflammatory activities of 3-deoxyflavonoids. Corn is a staple food crop in many parts of the world, and is also a rich source of 3-deoxyflavonoids; hence we will be using corn to understand the health benefits of 3-deoxyflavonoids in a whole food matrix. Gut bacterial metabolism of flavonoids, such as quercetin and anthocyanins, has been shown to be degraded by gut bacteria into metabolites with more effective cytotoxic potential than their parent compound. However, relatively little is known about the interaction between 3-deoxyflavonoids rich corn extract and the gut microbiota, as well as its fate after bacterial degradation. We hypothesize that 3-deoxyflavonoids rich corn extract will promote the growth of beneficial intestinal bacteria while limiting the growth of harmful bacteria. We also hypothesize that the microbial metabolites of 3-deoxyflavonoids would exert stronger anti-proliferative, anti-inflammatory and pro-apoptotic action on human colon cancer cell lines. Knowledge on this aspect is essential to advance new therapeutic strategies for maintenance and promotion of gastrointestinal health. This can also be exploited by the food industry to develop novel functional foods and prebiotic for health optimization and disease prevention.