



BIO-SUSTENTABILIDADE E BIO-SEGURANÇA ALIMENTAR, INOVAÇÃO E QUALIDADE ALIMENTAR

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Effects of the fertilization system on the chemical profile of *Ribes rubrum* L.

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Ribes rubrum L. fruits are widely consumed for their pleasant taste and nutritional features (**Figure 1**). These small red fruits are also considered superfoods, mostly due to their high content of phenolic compounds, fiber, iron, and vitamin C, among others, which confer them anti-inflammatory, antioxidant, antibacterial, depurative, and diuretic properties.¹ In fact, in the last years, there has been a reasonable increase of these fruits' consumption, with the growing interest of consumers in functional foods and the sustainability of their production. In this sense, organic and integrated production has been gaining expression, being seen as a way to enhance the quality of the fruits, rich in added-value antioxidant compounds, allowing to meet the most demanding consumers' expectations.²

Through this study, fruits produced conventionally and by applying a biological fertilizer were compared in terms of nutritional value (AOAC) and fatty acids (GC-FID), free sugars (HPLC-RI), organic acids (UFLC-PDA), tocopherols (HPLC-fluorescence), and phenolic compounds (HPLC-DAD/ESI-MS) composition. Moreover, the antioxidant properties of their hydroethanolic extracts (ethanol:water 80:20, v/v) were assessed by two cell-based methods (TBARS and OxHLIA). In general, higher levels of carbohydrates and energy, sucrose, polyunsaturated fatty acids and anthocyanins were found in the fruits grown in conventional agriculture. On the other hand, the fruits cultivated in biological mode showed higher concentrations of lipids, fructose and glucose, ascorbic acid, saturated and monounsaturated fatty acids, phenolic acids and flavonoids.

This difference in the chemical profile revealed to influence the bioactivity of these fruits, both in terms of inhibition of lipid peroxidation (TBARS) and oxidative hemolysis (OxHLIA), which were enhanced in the fruits produced in biological way.

The results obtained in the present study may serve as a basis for the definition of production parameters that best fit the culture of *R. rubrum*.



Figure 1: *Ribes rubrum* L. fruit. Source: Tropicos.org. Missouri Botanical Garden (<http://www.tropicos.org/Name/29101108>; accessed in 16/12/2019). Image source: <http://www.tropicos.org/Image/100191795> 8].

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