

Effect of Cooking Process on the Antioxidant Activity of Different Variants of Tomato-Based Sofrito

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Abstract : Tomato consumption has greatly increased worldwide in the last few years, mostly due to a growing demand for products like sofrito. In this sense, regular consumption of tomato-based products has been consistently associated with a reduction in the incidence of chronic degenerative diseases. The sofrito is a homemade tomato sauce typical of the Mediterranean area, which contains as main ingredients: tomato, onion, garlic and olive oil. There are also sofrito's variations by adding other spices which bring at the same time not only color, flavor, smell and or aroma; they also provide medicinal properties, due to their antioxidant power. This protective effect has mainly been attributed to the predominant bioactive compounds present in sofrito, such as lycopene and other carotenoids as well as more than 40 different polyphenols. Regarding the cooking process, it is known that it can modify the properties and the availability of nutrients in sofrito; however, there is not enough information regarding this issue. For this reason, the aim of the present work is to evaluate the cooking effect on the antioxidant capacity of different variants of tomato-based sofrito combined with other spices, through the analysis of total phenols content (TPC) and to evaluate the antioxidant capacity by using the method of free radical 2,2-diphenyl-1-picrylhydrazyl (DPPH). Based on the results obtained, it can be confirmed that the basic sofrito composed of tomato, onion, garlic and olive oil and the sofrito with 1 g of rosemary added, are the ones with the highest content of phenols presenting greater antioxidant power than other industrial sofrito, and that of other variables of sofrito with added thyme or higher amounts of garlic. Moreover, it has been observed that in the elaboration of the tomato-based sofrito, it is possible to cook until 60 minutes, since the cooking process increases the bioavailability of the carotenoids when breaking the cell walls, which weakens the binding forces between the carotenoids and increases the levels of antioxidants present, confirmed both with the TPC and DPPH methods. It can be concluded that the cooking process of different variants of tomato-based sofrito, including spices, can improve the antioxidant capacity. The synergistic effects of different antioxidants may have a greater protective effect; increasing, also, the digestibility of proteins. In addition, the antioxidants help to deactivate the free radicals of diseases such as atherosclerosis, aging, immune suppression, cancer, and diabetes.

Keywords : antioxidants, cooking process, phenols sofrito

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