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### BISPHENOL RESIDUES IN CONVENTIONAL AND UNCONVENTIONAL PROVOLAS CHEESE

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Food of animal origin play an important role in human dietary exposure to bisphenol residues (BPs), due to the high contribution of this exposure pathway [1]. However, migration of BPs from food contact materials is not the only way by which bioaccumulation occurs. In fact, in milk and dairy products, the presence of BPs is also thought to result from dairy cows feeding practices [2]. In this study, the presence of nine BPs in samples of *Provola Ragusana* cheese was investigated to assess the level of contamination and ensure a healthy and safe product for the consumer. The cheese was produced from milk of Friesian cows under two different feeding systems: a conventional diet (CTR) and an unconventional diet (BIO) enriched with dried olive cake (OC) source of bioactive compounds. The sampling was conducted monthly, from March to July 2021. BPs determination was performed by liquid chromatography and tandem mass spectrometry. Bisphenol AF (BPAF) and bisphenol S (BPS) were detected in all samples analyzed, whereas all the others (bisphenol A, bisphenol F, bisphenol E, bisphenol B, bisphenol AP, bisphenol Z, bisphenol P) were below their limit of quantification (LOQ). In the CTR and BIO samples, the mean concentrations of BPAF were  $2.53 \pm 0.36$   $\mu\text{g}/\text{Kg}$  and  $2.50 \pm 0.14$   $\mu\text{g}/\text{Kg}$ , respectively, whereas those of BPS were  $2.21 \pm 0.33$   $\mu\text{g}/\text{Kg}$  and  $2.14 \pm 0.18$   $\mu\text{g}/\text{Kg}$ , respectively. Statistical analysis (ANOVA and Tukey's test) of the data showed that the contamination levels in the two diets are similar. Only seasonal variations are observed, with significant increases of BPs concentration in the month of July for BIO and from March to May for CTR. These differences are probably due to different lipid content, seasonal variations in temperature or other forage compositions [3]. The results show that the integration of OC into the animal's diet does not affect the levels of *Provola* contamination. Thus, in this case, the source of BPs is not attributable to dairy cow feeding, but likely depends on the production process and environmental contamination. It can be concluded that unconventional *Provolas* enriched with OC are as safe for the consumer as conventional *Provolas*.

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