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**Title:** Contribution of peptides and polyphenols from olive water to acrylamide formation in sterilized table olives

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**Abstract:** To confirm the role of peptides as principal precursors of acrylamide formation in sterilized table olives, peptides from olive water were fractionated. After their partial fractionation by solid phase extraction (SPE) and ultrafiltration (<10,000 Da), respectively, small peptides from olive water were isolated by size-exclusion chromatography (SEC). In the fractions collected, peptides and polyphenolic compounds were determined colorimetrically, and acrylamide was quantitated by LC-MS/MS after heating of the samples. Subsequently, peptides were characterized by matrix-assisted laser desorption/ionization tandem time of flight mass spectrometry (MALDI-TOF/TOF-MS), and polyphenols were analyzed by LC-MS in the respective fractions. Finally, peptides containing fractions were purified on a polymeric resin (Amberlite XAD 16HP) to remove unbound phenolic compounds by adsorption. The results of the different experiments performed in complete absence of free asparagine and reducing sugars strongly support small peptides bound to polyphenols to be the principal precursors of acrylamide in sterilized table olives. (C) 2014 Elsevier Ltd. All rights reserved.

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