

**P74 - Bio-based and biodegradable polymers for food contact: a chemical approach to investigate their safety**

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Bio-based polymers derived from renewable biological resources and biodegradable polymers that will easily disintegrate and biodegrade in the environment, are being developed and promoted as an alternative to conventional petroleum-based non-biodegradable plastics to be utilized in food packaging. Some of the most common bio-based and biodegradable polymers are those based on PLA, PHA, PBS, and so on. However, these materials generally do not perform as well as conventional plastics and require additional chemicals such as plasticizers, antioxidants, light and UV stabilizers, release agents, crosslinking agents, etc. Alternatively, the polymers are blended together or copolymerized to obtain materials with improved properties. Therefore, these polymers, like other food contact materials, can release low molecular weight components to food and pose a health risk to consumers. The chemical safety of these sustainable materials has been scarcely studied.

In the framework of MIGRABIOQUANT project, funded by the Spanish National Research Agency, an analytical methodology to identify potential migrants in bio-based and/or biodegradable materials is being developed. The approach involves the combination of several techniques, namely FTIR for polymer identification, GC-MS for volatile and semi-volatile migrants and LC-MS for non-volatile migrants. In a small sampling carried out, polyester based materials and PLA, were some of the most common marketed materials. Regarding the potential migrants, it is worth noting the identification of NIAS, thus, for example, different oligomers in the samples analyzed. However, more research is required since data on migration in foods and human exposure assessment is scarce and they are essential elements for a complete risk assessment.

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