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Levels of bisphenol A in milk and dairy products in Hong Kong market by high performance liquid chromatography

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The use of Bisphenol A (BPA) in food containers and food packaging is highly concerned in the recent years, due to its potential endocrine disrupting effect on humans, especially infants and children. In the European Union (EU), it is classified as a chemical that possesses toxic effects on our ability to reproduce, according to the European Chemicals Agency (ECHA). It is commonly used in the industry as the monomer of polycarbonate plastics and epoxy-resins. The use of BPA-based polymer in food containers is extensive. Polycarbonate is commonly used in the fabrication of infant feeding bottles, while epoxy resins are used to coat the inner walls of metal cans that are in contact with foods and beverages. Due to its highly lipophilic nature, BPA can leach from the container or the plastic lining of cans to the food or beverage inside, resulting in contamination, human exposure and bioaccumulation, especially when the food is comparatively high in fat such as cow's milk and dairy products. BPA has been banned from infant feeding bottles in the EU since 2011, and there is a specific migration limit from food contact plastics. In France, it has also been banned in all food packaging, containers and utensils. In Hong Kong, however, there is no legislation regulating the BPA levels migrated from food containers or food packaging. In this study, a high-performance liquid chromatography method with UV detector was used to determine the BPA levels in milk and dairy products (including cream, evaporated milk and condensed milk) sold in Hong Kong market.

Results

Table 1 BPA level in polymeric inner wall coating

Sample	Type of product	Brand	Concentration (ppm)
1	Canned cream	A	Not detected
2	Canned evaporated milk	A	Not detected
3	Canned evaporated milk	B	Not detected
4	Canned evaporated milk	C	Not detected
5	Canned condensed milk	A	Not detected
6	Canned condensed milk	B	Not detected
7	Canned condensed milk	D	Not detected

*Detection limit = 5 ppm

Biography

Angela Wong has experience of working in the testing and certification industry, with the expertise in the laboratory testing on consumer products ensuring quality and safety (including physical, chemical and functional evaluation). She is also familiarized with global regulations on hazardous chemicals in consumer products, especially textiles and apparel, electrical and electronic products and food contact materials. Currently, she is working at the Technological and Higher Education Institute of Hong Kong (THEi) as a Teaching Fellow; her research is focused on the subject areas of analytical chemistry, food chemistry and food analysis.

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