



20th HSKIKi

28th CROATIAN MEETING
OF CHEMISTS & CHEMICAL
ENGINEERS

6th SYMPOSIUM VLADIMIR PRELOG

MARCH 28–31, 2023
HOTEL LONE • ROVINJ
CROATIA

**BOOK OF
ABSTRACTS**



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& CHEMICAL ENGINEERS**

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6th Symposium Vladimir Prelog

Book of Abstracts

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Determination and assessment of new-born dietary intake of polychlorinated biphenyls in commercial infant formulae

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Polychlorinated biphenyls (PCBs) are a group of contaminants characterized by their persistence, long-range transport, biomagnification in food chains and bioaccumulation in humans and wildlife. They have been shown to cause cancer in animals as well as a number of serious non-cancer health effects such as effects on the immune, reproductive and endocrine system and other health effects. The international community has responded to the threat from persisting organic pollutants (POPs), including PCBs, by negotiating a global treaty, the Stockholm Convention on POPs, with the objective of protecting human health and the environment from POPs. [1] However, legacy PCBs tend to biomagnify in the food chain and appear at higher concentrations in fat-containing foods. Infant formula plays important role in diet of non-breastfeeding newborns. [2] During the period of intensive growth, the infant has 4-7 meals a day. The daily intake of lipids is in the range of 21-35 g, depending on the age of the infant. Although the production standards are very high, in accordance with the Codex Alimentarius, there is no standard control of PCBs present in the products and data on occurrence of legacy contaminants such as PCBs in this important food sources are lacking. In this study, all PCB congeners were analyzed in five commercial infant formulae (stage 1, up to 6 month). First step was extraction of total lipids from infant formulae by Soxhlet method (ISO 8262-1), second step was determination of PCBs in lipid extracts of infant formulae by the method that combines high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS). The concentration of total PCBs ranged from 14,6 to 51,5 ng/g-lipid. Penta CBs were most prevalent in all infant formulae ranging from 13,6 to 36,6 ng/g-lipid. Average daily intake of PCBs is 88-309 ng PCBs/kg body weight /day for infants 0-month-old, and 73-258 ng PCBs/kg body weight/day for infants 6-month-old. Further investigation should include exposure assessment in order to reveal the exposure significance of PCBs in infant formulae.

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