acterization of data-poor chemicals. The views expressed in this abstract are those of the author and do not necessarily reflect the views and policies of the U.S. EPA.

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P03-024
Influence of packaging on cosmetic product quantity of use

M.-P. Berrada-Gomez[1,*], M. Galonnier[1], S. Guillou[2], A. Rielland[2], D. de Javel[2], P.- J. Ferret[1]

[1] *Pierre Fabre Dermo Cosmetique, Safety Assessment, Castanet-Tolosan, France*
[2] *Eurosafe, Saint Gregoire, France*

Purpose: Cosmetics are the source of daily population-wide and often long-term exposure to a variety of substances. However, to conduct reliable safety assessment, accurate exposure information for cosmetic products and ingredients is needed. In a previous exposure study, we have already suspected the influence of the packaging on the daily quantity of use. The aim of this new study was to validate this hypothesis by keeping only the packaging as the variable. All other parameters (formulae, volume, volunteers, . . .) were under control.

Methods: This cross over study was carried out on 221 adults: 113 men and 108 women. Three categories of products were studied: a body cream, a shower gel, and a shampoo. They were packaged in a 200 ml tube with a flip top cap (TC) and a 200 ml bottle with a pump (BP). Each group of products was used by the 221 subjects, according to their habits, over a 2-week period. Products were weighed at the start and completion of each period in order to determine the total amount of product used according to packaging.

Results of the study: Mean ± standard deviation, and 90th percentile on daily quantities of use were as follows: – Body cream: TC = 5.22 ± 3.22 g; 9.44 g/BP = 4.61 ± 2.88 g; 9.30 g, – Shower gel: TC = 7.10 ± 3.24 g; 11.02 g/BP = 6.45 ± 3.26 g; 10.60 g, – Shampoo: TC = 6.01 ± 3.39 g; 10.72 g/BP = 5.05 ± 3.14 g; 9.20 g.

Conclusion: In this study, we have highlighted the influence of the packaging on the daily quantity of use: men and women consume more product when packaged in a tube with a cap than in a bottle with a pump. This was observed for the three categories of products.

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Genotoxic assessment of *Crataegus oxyacantha* fruits extract in cells of mice

E. Maistro, B. Yonekubo, E. Marques

UNESP, Fonoaudiologia, Marilia, Brazil

Crataegus oxyacantha (Rosaceae family) is a medicinal plant with a long history of use in European herbal and traditional Chinese medicine, being distributed in the present time in several others countries, including Brazil. Its fruit has been used over the course of time as diuretic, for dyspnea, and renal calculi. Sedative and anxyolytic effects were also reported in some analysis. However, the majority of studies produce evidence of its cardiotonic properties including heart failure, angina pectoris, hypertension with myocardic insufficiency, mild alterations of cardiac rhythm, and atherosclerosis. Due the pharmacological potential of *C. oxyacantha* and absence of genetic toxicity studies on this plant, the aim of the present study was to evaluate the genotoxic and clastogenic/aneugenic potential of *C. oxyacantha* fruits extract *in vivo* in cells of mice, using the comet assay and micronucleus test, respectively. The extract was administered by oral gavage at doses of 50, 100 and 200 mg/kg body weight during seven consecutive days, at 24 hours interval. Cytotoxicity was assessed by scoring 200 consecutive polychromatic (PCE) and normochromatic (NCE) erythrocytes (PCE/NCE ratio). The results showed that *C. oxyacantha* fruits extract did not induce significant DNA damage in leukocytes and bone marrow cells; however, the extract show a significant increase in micronucleated polychromatic erythrocytes at the three tested doses, without dose-dependent response. The PCE/NCE ratio indicated no cytotoxicity. Under our experimental conditions, *C. oxyacantha* fruits extract showed weak clastogenic and/or aneugenic effects in bone marrow cells of male mice, suggesting caution on its continuous use. Complementary genotoxic and cytotoxic *in vitro* and *in vivo* assays are being performed to better evaluate the safe use of this plant as phytomedicine by humans.

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P03-026
Detoxification of methylmercury by formation of mercury selenide in muscle of toothed-whale

M. Sakamoto[1,*], T. Itai[2], M. Nakamira[1], M. Sawada[1]

[1] *National Institute for Minamata Disease, Minamata, Japan*
[2] *Ehime University, Matsuyama, Japan*

Mercury (Hg) accumulates at high levels in marine mammal tissues but their speciation is poorly understood. Our goal is to study how methylmercury is detoxified in toothed-whale muscles. In the main body of the study, total mercury (T-Hg), methylmercury (MeHg), inorganic mercury (I-Hg) and selenium (Se) were measured in the muscles of four toothed-whale species: bottlenose dolphin ($n = 31$); Risso's dolphin ($n = 30$); striped dolphin ($n = 29$); and short-finned pilot whale ($n = 30$). In each species, the MeHg concentration increased with increasing T-Hg concentration and tended to reach a plateau. In contrast, the proportion of MeHg in T-Hg decreased from 90–100% to 20–40%. T-Hg and Se showed strong positive correlations. Se/I-Hg molar ratios maintained at 1 as T-Hg increases. These results indicated that the demethylated Hg formed I-Hg/Se equimolar complex of HgSe in the toothed-whale muscles. In addition, an X-ray absorption fine structure analysis (XAFS) of bottlenose dolphin muscles confirmed that HgSe was the dominant chemical form. HgSe mainly localized in cells near the endomysium using electron probe microanalysis (EPMA). These results suggested that the demethylated MeHg deposits within muscle cells of bottlenose dolphin as an inert HgSe.

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