

INTRODUCTION

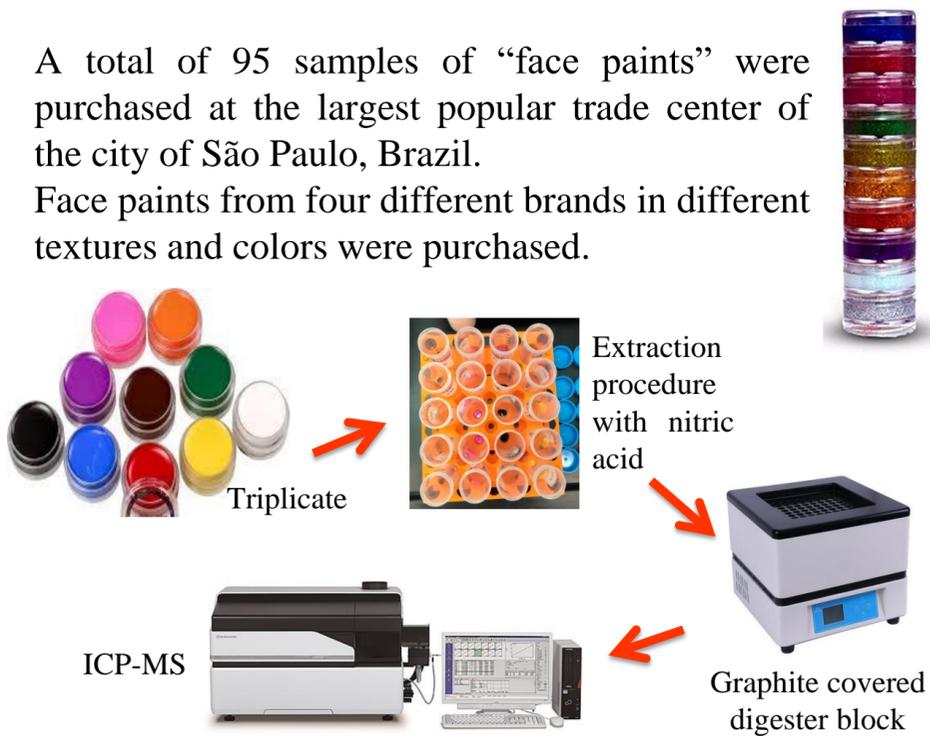
Some metallic-based pigments used as dyes in color cosmetics, like face paints, may contain toxic elements. This costume makeup can be used by adults but is also applied to children, mainly in Carnival or child parties. During the use, different levels of exposure are possible, including dermal and incidental oral routes.

OBJECTIVE

To determine As, Cd, Pb and Sb concentrations in face paints sold in popular stores for children's use.

METHODS

A total of 95 samples of "face paints" were purchased at the largest popular trade center of the city of São Paulo, Brazil. Face paints from four different brands in different textures and colors were purchased.



RESULTS

Table 1. Results (mg L⁻¹) of toxic elements in face paints, including number of samples, geometric mean, standard deviation, minimum-maximum and limits stated by Canada, U.S. and Germany legislations

Toxic elements	n	Geometric mean	SD	Min - Max	Canada / U.S.	Germany
Pb	93	0.22	1.43	0.011 - 11.69	10	5
Sb	74	0.009	0.313	0.0002 - 2.65	5	0.5
Cd	71	0.003	0.07	0.000004 - 0.40	3	0.1
As	92	0.09	0.31	0.011 - 1.69	3	0.5

One sample exceeded the 10ppm limit for Pb in cosmetics stated by Canada and U.S (Health Canada 2012; U.S FDA 2016).

Twenty two samples exceeded the As, Cd, Pb or Sb limits of German legislation which is more stringent (Bund et al 2017).

White, blue and purple colors showed the highest Pb and Cd values, while lilac, brown and white showed the highest As values.

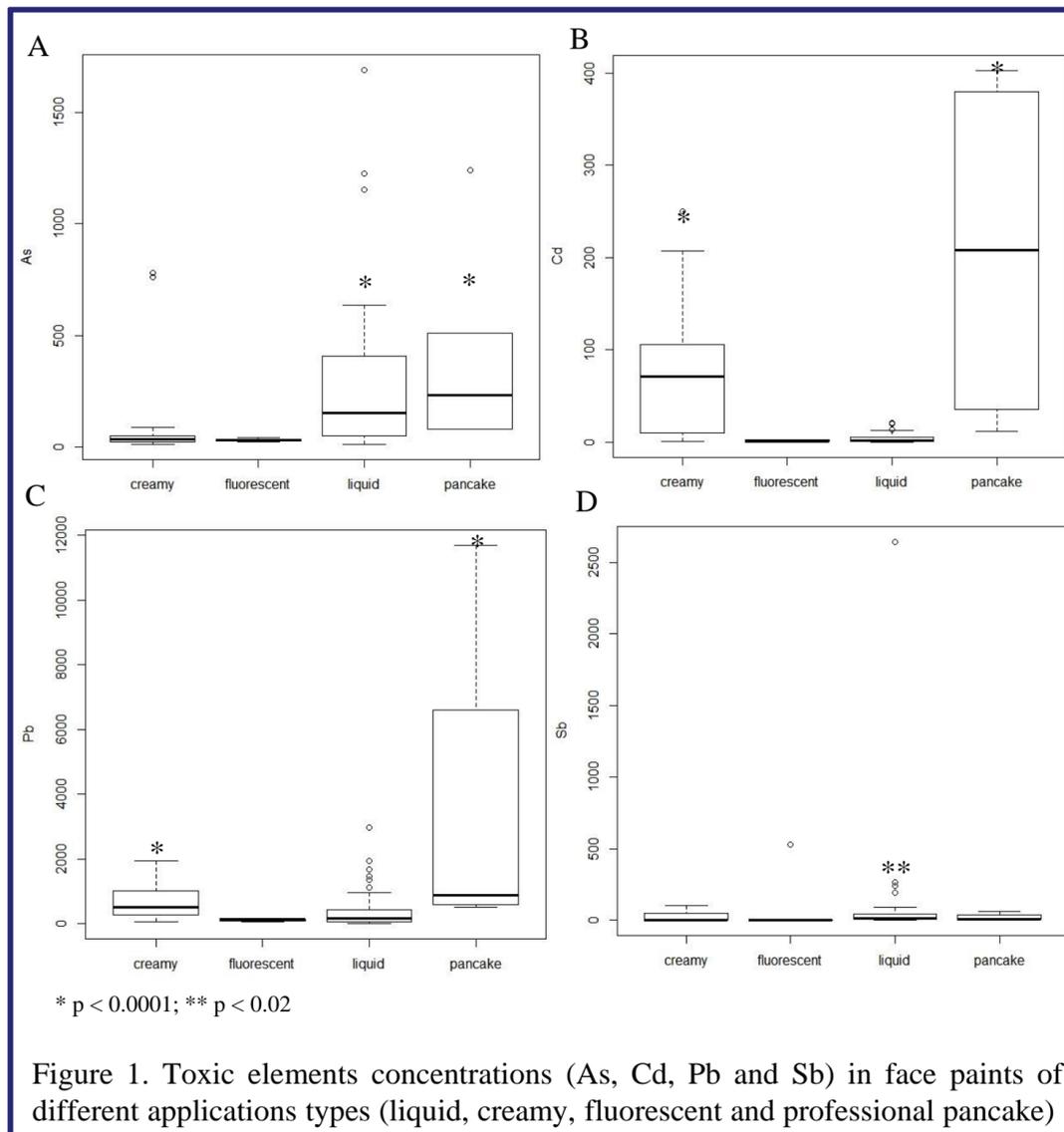


Figure 1. Toxic elements concentrations (As, Cd, Pb and Sb) in face paints of different applications types (liquid, creamy, fluorescent and professional pancake)

CONCLUSIONS

- Concerns of contaminated cosmetics are becoming commonplace in the beauty market, however limits for metals impurities in these products are rare, and in many countries, this regulation does not even exist.
- Studies with costume makeup are needed to assess health risks, considering the use both for adults and children.

REFERENCES

- Bund, B. Technically avoidable heavy metal contents in cosmetic products. *J Consum Prot Food Saf.* 2017;12:51–53. doi:10.1007/s00003-016-1044-2.
- Health Canada, "Guidance on Heavy Metal Impurities in Cosmetics," July 20, 2012.
- U.S FDA. U.S. Food and Drug Administration. Lead in Cosmetic Lip Products and Externally Applied Cosmetics: Recommended Maximum Level Guidance for Industry. December 2016.

ACKNOWLEDGMENTS