

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p>Seventh Meeting of the Population and Conservation Status Working Group <i>Edinburgh, United Kingdom, 18 - 19 May 2023</i></p> <p>Phthalate esters (plasticizers) in the uropygial gland and their relationship to plastics ingestion in seabirds along the coast of Espirito Santo, eastern Brazil</p> <p><i>Ralph E.T. Vanstreels, Isadora N.L. Piccinin, Marcelo Maraschin, Luciana Gallo, Patricia P. Serafini, Alice Pereira, Allan P. Santos, Leandro Egert, and Marcela M. Uhart</i></p>
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SUMMARY

Plastic ingestion is a problem for seabirds worldwide. In addition to direct health effects such as obstruction or perforation of the gastrointestinal tract, plastic ingestion can also lead to indirect health effects through the release of chemicals that may be absorbed and cause systemic and chronic toxicity. Among chemicals that can be released by plastics are phthalate esters, a group of chemicals widely used as plasticizers or additives to change the physical characteristics of plastics. In this study, three phthalate esters, dimethyl phthalate (DMP), dibutyl phthalate (DBP), and diethylhexyl phthalate (DEHP), were quantified in the uropygial gland of 48 seabirds from 16 species collected ashore in a tropical region, the coast of Espírito Santo, Eastern Brazil. Including trace levels, DMP was detected in 16 birds (33%) from 10 species, with an average concentration of 0.014 \pm 0.005 ng/l (mean \pm SD for individuals with concentrations above the practical level of detection of 0.01 ng/l). DBP was detected in 15 birds (31%) from 11 species, with an average concentration of 0.049 \pm 0.032 ng/l. DEHP was detected in 21 birds (44%) from 11 species, with an average concentration of 0.115 \pm 0.105 ng/l. DMP concentration in the uropygial gland was positively associated with the presence, number, and mass of plastic items in the upper digestive tract. However, no such relationship was noted for DBP nor DEHP, suggesting the concentration of phthalate compounds in the uropygial gland might not always serve as a reliable proxy for plastic ingestion. In spite of relatively high frequencies of detection, the low concentrations of phthalates detected in this study suggest levels of exposure below known toxicity thresholds. Further studies on the potential adverse effects of phthalate exposure in seabirds are necessary, especially on the reproductive development of embryos and chicks.