

MICROPLASTICS: LOW ABUNDANCE

Examination result for Flor de Sal and traditional sea salt is available

OLHÃO, Algarve, Portugal, 29. June 2018 – After a German research team had detected the presence of microplastics in several samples of Fleur de Sel this January, Marisol commissioned an individual investigation for their artisan salts. Testing was done at Faro-based University of Algarve and the results are now available.

The Lab for Chemical Analyses (LAQ) at Faro University carried out analytical testing, based on a method developed specifically for quantitative determination of microplastics in sea salt. Researchers first separated the sample's insoluble content into four fractions and then examined them under the microscope. Microplastic particles of each fraction were counted for quantification, and secondly classified by their shape.

The method's limit of quantification is five particles per kilogram, related to the dry matter. Investigated were samples of unprocessed raw salt coming directly from the salt pans, in order to exclude potential contamination of the final product by plastic packaging materials.

In the study, the sample of raw traditional salt, Marisol® Sal Tradicional, was found to contain 40 particles of microplastics per kilogram of dry weight (40 Mps/kg d.w.), which is significantly lower than the other Algarve sea salts so far tested in the same lab. In Marisol® Flor de Sal, 60 particles were detected per kilo (Mps/kg d.w.), which according to LAQ is an average value for Flor de Sal from the Algarve coast and coincides with researchers' findings of slightly higher contamination levels for Flor de Sal, in comparison to traditional sea salt.

Based on a daily salt intake of five grams per day, as recommended by the World Health Organisation (WHO), neither of the values found in Marisol's salts is alarming let alone harmful — unlike many other foodstuffs, which are also contaminated with microplastics but consumed in considerably higher quantities.

The results for both salt types reveal identical, low values for the two groups of larger-sized particles between five and 0.5 millimetres. Even in non-purified raw salt, from which the samples had been taken, only a few particles per kilogram were detected. This may be due to the filtration of the concentrated brine in the salt pans, which actually was designed to withhold small crustaceans and other maritime microorganisms. Or seawater from the

Algarvian shores might just be less polluted by larger plastic particles from the outset. “We need more studies on this matter”, says Marisol’s managing director Andrea Siebert, hinting at a recent publication in the June edition of National Geographic, where the Portuguese Atlantic coast shows relatively low plastic pollution levels.

The number of tiny-sized particles, however, between 0.5 millimetres and ten micrometres, seems to be higher in Flor de Sal than in traditional sea salt, which according to the LAQ lab, can be explained by the different ways the salts are gathered: whereas traditional salt is raked from the bottom of the salt pans, Flor de Sal is skimmed from the surface of the brine — which is where most microplastics float due to their low density. The particles from the surface are thus likely to end up in the Flor de Sal. Another possible source for microplastics in sea salt is dissemination by air, as the LAQ researchers hint. This is a pathway of contamination already proven for natural honey and not unlikely, given the open-air exposure of the salt pans in general and more specifically, the stronger exposition of the Flor de Sal crystallising on the surface.

Nevertheless, all these considerations don’t go beyond speculation: Neither contamination pathways nor standardised lab routines for microplastics in sea salt have been safely established so far. LAQ researchers plan to publish a resume of their investigations on microplastics in Algarvian sea salts, with results for the examined salt samples, still this year. They also intend to collaborate with the region’s salt pan producers for developing practical solutions able to reduce microplastics in sea salt.

Meanwhile Marisol Sea Salts is keen on receiving the results of the second lab, which examined several batches of packed salts out of the company’s product range. By this additional study, Marisol’s managing director Andrea Siebert hopes to get some evidence on the effect of manual salt cleaning on one hand and on the influence of plastic packaging on the other, with regard to the salt’s contamination with microplastics.

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Analytical bulletins in English are available on request: quality@marisol.biz