

Title: **Toxicity and detection of arsenosugars in edible algae**

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Globalization and the rise of a more sustainable diet is changing human eating habits, one example being the increase in **algae** consumption in Western civilization. **Algae** is a foodstuff that is being used more and more every day due to its nutritional qualities, low ecological impact and ease of conservation. So much so that there are already many western supermarkets selling these sea vegetables.

At present, much is still unknown about the nutrients provided by this type of **food**, in particular the **arsenic** they contain. **Algae** is one of the **foods** that contribute the most **arsenic** to the human body, since **algae bioaccumulate** the **arsenic** they absorb from the sea, containing up to $30\mu\text{g}\cdot\text{g}^{-1}$ in wet sample weight. The absorbed **arsenic** is **metabolized** by anabolizing different **As species**, but mainly in **arsenosugar** molecules. This type of molecule represents 80% of the **arsenic** contained in **algae**.

The **toxic** effects of some **As species** are currently known, such as inorganic **arsenic** which is highly carcinogenic, but the **toxicity** of species such as **arsenosugars** is still unknown. In this work we intend to deepen the studies carried out on the **toxicity** of this **As species** and the **metabolites** it generates in the human body.

Besides, a comparison is made on the studies that have analyzed **arsenosugars** in **macroalgae** for **culinary** use. This type of **algae** is the one that can provide a higher peak of **arsenosugars** and is the one that can be found more easily in supermarkets or restaurants. In this comparison we observe which have been the analytical methods used for the **speciation** of **arsenosugars** in **macroalgae** for **culinary** use, both in the preparation of the sample and in the instrumental analysis, **separation** and determination of these analytes.

Keywords: toxicity, arsenic, arsenosugar, algae, As species, metabolites, bioaccumulation, speciation, separation, culinary, macroalgae, food.