

# Sea salt variations may aid reformulation: Study

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By Nathan Gray

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***Certain sea salts with high salty flavour intensity or lower sodium content may be used to lower sodium levels in food formulations, according to new research.***

The study, published in the *Journal of Sensory Studies*, reveals distinct differences in salty taste intensity and sodium content between [sea salts](#) harvested in different locations. The researchers said that the results of the study may be of use when looking to produce new low salt products, or when reformulating existing products with lower sodium content.

*"There has been some controversy that sea salt may be healthier than table salts due to the presence of other minerals. This research demonstrates that sea salts harvested from different parts of the world have different mineral content and time-intensity profiles of salty taste,"* said the researchers, led by Dr. MaryAnne Drake from the Department of Food, Bioprocessing, and Nutrition Sciences, at North Carolina State University.

*"Due to the different time intensity profiles, it may be possible to use less of some sea salts to obtain the same salty taste as a food containing traditional salt, but having lower sodium content,"* they added.

## Salt reduction

Excessive intake of dietary sodium is strongly linked to hypertension, a risk factor for the development of cardiovascular disease and stroke. Whilst there is also evidence suggesting that high sodium intake is linked to gastric cancer, decreased bone density, and higher rates of obesity.

Much research into sodium reduction from sodium chloride has focused on using salt replacers – such as potassium salt – which may provide salty tastes with lower sodium levels.

Previous studies have indicated that an increased intake of dietary potassium can exert a protective effect in individuals with sodium-induced hypertension, whilst others have shown that certain food products can reduce sodium chloride levels by up to 50 per cent through potassium salt replacement.

Drake and colleagues noted a growing interest in sea salt in recent years. They said that distinct differences in the chemical composition of salts (different sea salts vs table salt) could contribute to taste intensity differences which may be of use for food formulators.

They said that – depending on region of origin – sea salts are known to contain a variety of minerals including magnesium, calcium, sulphur, potassium, iron, copper, fluorine and phosphorus.

*"To our knowledge, research has not compared the sensory or mineral profiles or the time intensity of salty taste of sea salts,"* said the researchers.

The researchers tested the mineral content and flavour profiles of 45 different salts to determine if variations in mineral content impacted the basic taste profile

## Study details

Drake and co-workers reported that the mineral content of salts differed depending on the harvesting location.

They found that certain sea salts – including several from Mediterranean areas and Asia – had higher sodium content than the reference table salt, but observed three sea salts with 30 per cent less sodium than the reference – with sea salts from the Hawaii area showing the lowest sodium content.

A correlation was seen between sodium content and salty taste, but when different salts were compared on an equivalent sodium basis, no difference in salty taste was reported.

In contrast, time-intensity profiles for salty tastes were observed to be distinct to each salt type. Drake said that this may be due to a role of other positively charged mineral ions in the perception salty tastes.

They said that the results suggest that other minerals may play a role in salty taste perception.

*“The impact of trace minerals on flavour directly appeared to be minimal, but flavours such as mineral and metallic and sometimes stronger intensities of umami and astringent mouth feel were noted in sea salts compared to table salt,” they concluded.*

Source: *Journal of Sensory Studies*

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*“Comparison of salty taste and time intensity of sea and land salts from around the world”*

Authors: S.L. Drake, M.A. Drake