Comparing low sodium salt substitutes: Results of taste and visual tests in South African adults

Overconsumption of sodium has been associated with health issues such as kidney disease, osteoporosis, and hypertension, or high blood pressure, which can result in stroke and heart disease.

The word salt comes from the Latin word "*sal*," meaning salt.

Salt has long been used to preserve food and add flavour. However, as the saying goes, *"too much of anything is bad"*. Eating too much salt is no exception. Overconsumption of sodium has been associated with health issues such as kidney disease, osteoporosis, and hypertension, or high blood pressure, which can result in stroke and heart disease.

The study below compared the taste and visual acceptability of 35%, 50%, 66%, and 100% KCl salt substitute formulations to common salt (100% NaCl) in urban South African adults. A total of 56 participants were asked to undertake a double-blind comparison of a variety of potassium-enriched low sodium salt substitutes (LSSS) with regular salt as a reference.

Methodology

Participants were recruited through a youth community centre in Soweto, Johannesburg. Adults aged 18 or older who had no self-reported history of kidney disease, impaired kidney function, or food allergies and lived in the local urban area were purposively sampled, with additional participants gathered through snowball sampling. Trained researchers who spoke the participant's home language explained the study, and all participants provided written informed consent before participating. The study was carried out in accordance with the Declaration of Helsinki principles, and the protocol (M220652) was approved by the University of the Witwatersrand's Human Research Ethics Committee (Medical).

Key findings

In the three categories of (i) taste ranking, (ii) taste perception, and (iii) use ranking, 50% potassium chloride (KCl) outperformed the other potassium-enriched low sodium salt substitutes (LSSS). The REDCap electronic data capture tools, hosted at The University of the Witwatersrand, were used to record the study data, which was gathered by trained researchers. Overall, 62% of participants said they enjoyed the salt substitutes and would be pleased to use them, or that the 50% KCl tasted like regular seasoning when the taste impressions were examined. In contrast, 71% of participants said they would eat but didn't like or wouldn't eat 100% KCl.

Additionally, participants were asked to try visually identifying the different salt compositions. The majority of participants (57.3% and 36.4%) could visually distinguish between 100% potassium chloride (KCl) and 100% sodium chloride (NaCl), whereas identifying other blends was difficult.

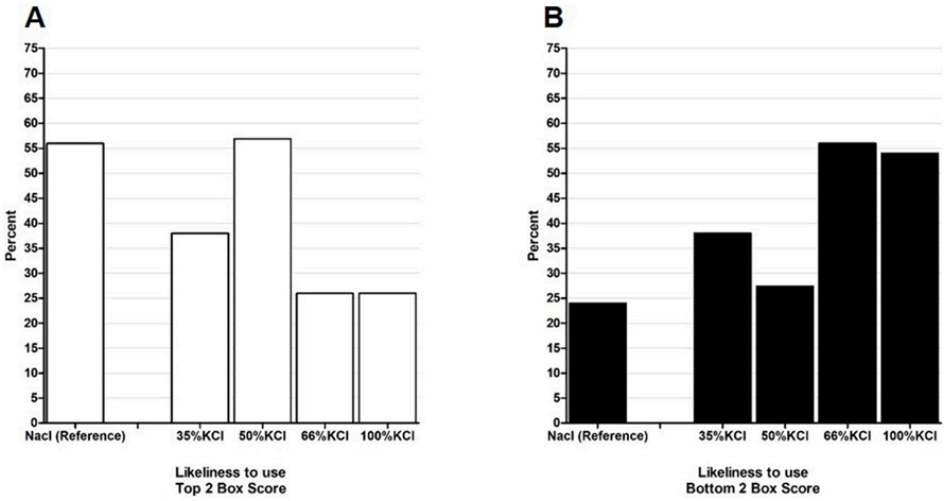

Figure 1: *A. Top and B. bottom-2-box score of taste ranking of various salt formulations.*

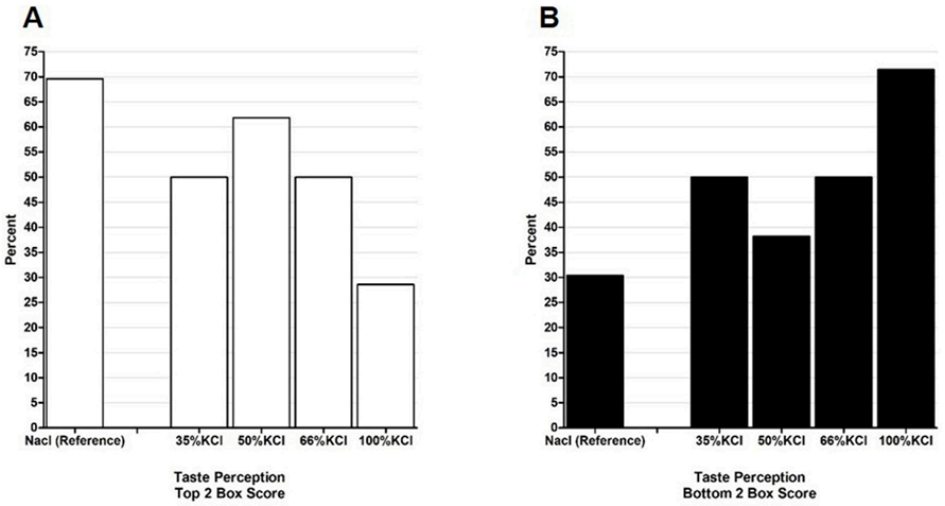

Figure 2: *A. Top and B. bottom-2-box score of taste perception of various salt formulations.*

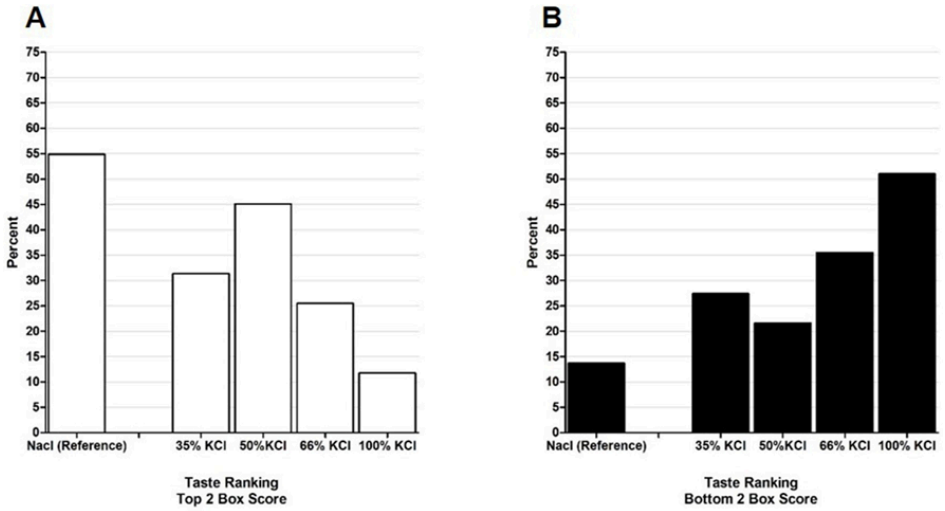

Figure 3: *A. Top and B. bottom-2-box score of likeliness to use of various salt formulations.*

Conclusion

Results indicate that, in a South African setting, the 50% KCl salt alternative would be well accepted in terms of flavour. Furthermore, most of the participants were unable to visually discern the 50% KCl, making it a good choice for everyday household use.

Reference:

Comparing a range of potassium-enriched low sodium salt substitutes to common salt: Results of taste and visual tests in South African adults

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