

The Effect of Cooking on The Sensory Properties of Portulacaria Afra Samples by Using the Check-All- That-Apply (CATA) Test

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Abstract

The *Portulacaria afra*, also known as the 'Spekboom' is a succulent plant that belongs to the subfamily of the portulacarioideae. The portulacarioideae subfamily is found in countries like Angola, Mozambique, Namibia, South Africa, and Swaziland. The *P. afra* is a succulent plant with reddish stems and green leaves, it thrives in arid and semi-arid areas. The plant's ability to thrive in the harshest of environmental conditions makes it favourable for sustainable food security. It is known as a miracle plant because of its many environmental advantages. Under stress, the plant shifts from predominantly C3 mode of gas exchange to typical Crassulacean Acid Metabolism (CAM) type CO₂ uptake. The *P. afra* plant leaves are acceptable for human consumption, the plant is gradually adapting to our palates; using the leaves in dishes with other ingredients will enhance its acceptance. The study aimed to determine the consumer acceptability, as well as the sensory profile, of fresh *P. afra* plant leaves (control), compared to plant leaves prepared using four different cooking methods (blanched, baked, steamed and stir-fried). The morphology and physico-chemical properties of the plant was analysed. The 94-consumer panellist evaluated raw and cooked *P. afra* samples using the Check-All-That-Apply (CATA) task. The CATA task gives the consumer descriptive terms (attributes) from which they can check as many terms as possible to describe a given product. A nine-point hedonic test was used during the CATA task to determine consumer's overall likeability and acceptability of raw and cooked samples. The *P. afra*'s sensory profile, created using the CATA technique, described the plant as "fresh", "leafy", and "green. The panellists might have associated the taste and texture with a fresh leafy green vegetables like lettuce". There were no significant differences between the raw and cooked samples, all treatments, except stir-frying, were acceptable to the panellists. Although the consumer disliked the samples on their own, it must be kept in mind that the leaves would make up part of a dish.