**Sensory Impact of Seaweed-Enriched Hamburgers:**

**The Role of *Alaria esculenta***

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**Abstract**

This study examines the effects of incorporating *Alaria esculenta* seaweed into hamburgers on consumer acceptance. Various formulations of hamburgers were developed by modifying their composition with *Alaria esculenta*. Consumer preference analysis indicated that only the samples containing 0% and 1% *Alaria esculenta* received favorable sensory evaluations among the five tested formulations, which included *Alaria* flakes or powder in concentrations of 0%, 1%, 3%, 5%, and 10%, incorporated into meat, buns, sauce, or all components. The overall findings suggest that the reference hamburgers (0% *Alaria esculenta*) achieved the highest consumer appreciation scores. However, among the modified samples, those containing 1% *Alaria esculenta* in the sauce (HS1) were rated highest in terms of color (8.15 out of 9.00), aroma (7.57 out of 9.00), and consistency (7.84 out of 9.00, *p* < 0.05). Among the five tested formulations, HS1 also received the highest overall acceptability rating (8.18, *p* > 0.05) from male participants (26.83% of the respondents), while female participants exhibited a stronger preference for the reference hamburgers. Regarding geographical background, urban participants (65.85% of respondents) awarded the highest general acceptability scores to HS1, while rural participants (34.15% of respondents) similarly expressed the greatest preference for hamburgers containing 1% *Alaria esculenta* in the sauce. When analyzed by age or education level, HS1 received the highest ratings for general acceptability (8.29), taste (7.86), smell (7.86), and consistency (8.29, *p* > 0.05), surpassing the reference samples. However, hamburgers with higher *Alaria esculenta* concentrations (3%, 5%, and 10%) were largely rejected by consumers due to their "unusual hamburger texture" and "overly intense and salty" flavor attributed to the presence of seaweed. These findings suggest that further refinement of the production process is necessary to enhance the sensory characteristics of hamburgers containing higher levels of *Alaria* esculenta*.*

**Keywords:** Sensory study, functional hamburgers, sustainability, consumer acceptance, Alaria esculenta;