

Attitude and Perception Towards the Consumption of Clover Grass-Based Protein Among Austrian and Danish Consumers

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Research shows that the global population is expected to reach 9.7 billion by 2050, and thus the demand for affordable and sustainable protein sources is becoming increasingly urgent (Hadidi et al., 2023). The rising meat consumption contributes to significant environmental pressures and impacts planetary health, with food production alone accounting for over 24% of global greenhouse gas emissions, and meat and dairy production are among the largest contributors (Estell et al., 2021). To address these challenges, we explore clover grass-based protein, a more environmentally friendly protein alternative.

Clover grass, a crop already known for its use in livestock farming, is now being considered as alternative protein source for human consumption. However, consumer acceptance of the new clover grass-based protein (CGBP) remains uncertain. The goal of this study is to examine the attitudes and perceptions of adults in Austria and Denmark regarding the inclusion of CGBP in their diets. Investigating clover grass as a plant-based protein alternative in Denmark and Austria



Photo 1: Clover grass protein extract (photo: Husain Raza)

can inform strategies to shift popular diets toward more sustainable options. This study highlights the factors that influence dietary preferences in Denmark and Austria and tries to fill a gap in existing literature by exploring the key drivers and barriers to adopting this novel protein source. It offers insights into the similarities as well as differences in food choice between Austrian and Danish residents. Another secondary aim was understanding their views on upcycled food, alternative protein, novel foods and grass protein in general.

The study employed an exploratory sequential mixed-method approach (Creswell, 1999). First, we explored participants' perceptions, willingness to consume clover grass protein, motivations, barriers, and attitudes toward its use in focus group discussions. The insights we gained were further used for the development of an online survey, which was then distributed to a total of 300 respondents in Austria and Denmark. Respondents were recruited with the funding of the Green Solutions Centre. This mixed-method approach—combining qualitative insights from focus groups and quantitative data from the survey—enabled a comprehensive exploration of the factors influencing attitudes and perception towards clover grass protein. The combination of these methodologies provided both measurable outcomes and a deeper understanding of Austrian and Danish adults (Roques et al., 2020).

References

Hadidi, M., Hossienpour, Y., Nooshkam, M., Mahfouzi, M., Gharagozlou, M., Aliakbari, F. S., Aghababaei, F., & McClement, D. J. (2023). Green leaf proteins: a sustainable source of edible plant-based proteins. In *Critical Reviews in Food Science and Nutrition*. Taylor and Francis Ltd. <https://doi.org/10.1080/10408398.2023.2229436>

Estell, M., Hughes, J., & Grafenauer, S. (2021). Plant protein and plant-based meat alternatives: Consumer and nutrition professional attitudes and perceptions. *Sustainability (Switzerland)*, 13(3), 1–18. <https://doi.org/10.3390/su13031478>

Creswell, J. W. (1999). Mixed-Method Research: Introduction and Application. In G. J. Cizek (Ed.), *Handbook of Educational Policy* (pp. 455–472). Academic Press. <https://doi.org/https://doi.org/10.1016/B978-012174698-8/50045-X>