Most people see insects as an alternative and sustainable source of food for the future: Study

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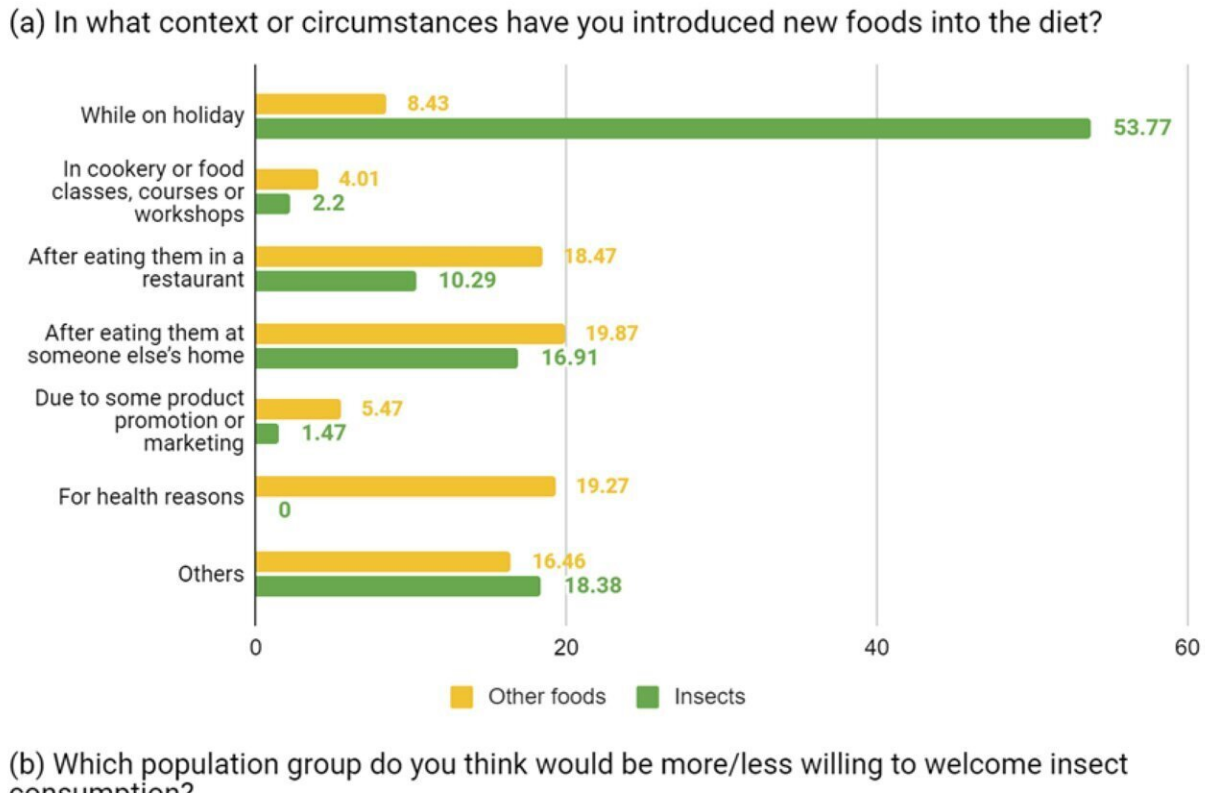

Distribution of food introduction contexts and level of reception by population group. (a) Context or circumstances of introduction of new foods into the diet. (b) Population group and willingness to welcome insect consumption. Credit: *International Journal of Environmental Research and Public Health* (2022). DOI: 10.3390/ijerph192315756

Most people (58%) participating in a survey that forms part of a study by the Universitat Oberta de Catalunya (UOC) on insect consumption believe that they could become an alternative and sustainable source of protein in the future and therefore think that they could well become part of our diet.

The results of the study "Consumers' Acceptability and Perception of Edible Insects as an Emerging Protein Source" have been published on an open access basis in the *International Journal of Environmental Research and Public Health*. The study forms part of the doctoral thesis by Marta Ros, a student of the UOC doctoral program in the Information and Knowledge Society.

The study had the mission of identifying parameters that would help improve acceptance of insect consumption to be in a position to introduce them as a sustainable source of protein in future diets. Its authors are Marta Ros, doctoral student and member of the UOC's Faculty of Health Sciences, and Anna Bach and Alicia Aguilar, faculty members and researchers at the FoodLab research group.

Even though entomophagy—the consumption of insects as a foodstuff by humans and animals—was common practice amongst our ancestors, from ancient China to the Roman Empire, it was abandoned a long time ago (although it still takes place in countries like China, Thailand, Japan, Colombia, Mexico, Peru, Brazil and in some parts of Africa).

The health benefits of consuming edible insects

In light of the rapid exhaustion of natural resources, climate change and the loss of biodiversity, since 2013 the Food and Agriculture Organization of the United Nations (FAO) has been highlighting the need to review modern food science practices to increase the trade in and consumption and acceptance of insects as a source of food. A

number of studies have shown the positive impact that eating insects has on human and animal health.

In animals, studies show positive outcomes for weight control, reducing blood glucose and cholesterol levels and increasing microbiota diversity. The fats edible insects contain are rich in unsaturated fatty acids, particularly polyunsaturated fatty acids, which can have benefits in feeding. Studies in humans show that edible insects help improve intestinal health, reduce systemic inflammation and significantly increase blood concentrations of amino acids.

Most people have never eaten insects

The UOC study is based on the responses of 1,034 people who participated in a survey on insect consumption. The vast majority, 86%, stated that they had never eaten insects, and only 13% said that they had. The chief reason given for not eating insects was disgust (38%), followed by lack of custom (15%), doubts around food safety (9%) and cultural reasons (6%), amongst others.

This reluctance to consume insects is also shown when survey recipients were asked to consider whether they would be prepared to include them in their normal diet. Only 16% said they would, while 82% answered that they would not. The majority, 71%, also stated that they would not cook insects at home, while 28% said they would. Asked whether they would offer dishes containing insects at a restaurant, 73% said no, while 25% responded positively. The majority (81% in this case) believed that the general public would not be receptive to dishes with insects, while 16% thought that it would.

A positive outlook for the future

Despite this rejection, under certain conditions, opinions on eating insects improve. In fact, figures indicate that almost 50% of respondents believed that having information on insects' potential as sustainable food would encourage their consumption, while 48% did not. Optimism for the future is clearly shown when asked whether insect consumption could become a practice in the future. A clear majority, 58%, responded positively, while 38% gave a negative response.

Most respondents indicated that the way in which insects are prepared for consumption is important in attracting consumers. More specifically, 70% of respondents held that a preparation that did not reveal the insects' natural shape would make them easier to consume. On the other hand, 10% believed that insects would be more attractive to consumers if their natural appearance could be seen. By far the most popular format amongst respondents was flour (23%), followed by biscuits (6%) and bars (5.8%).

The study has identified the parameters that could improve consumer acceptance of insects with a view to introducing them as a sustainable source of protein in future diets. The responses have assisted in studying the areas associated with acceptability: neophobia, social norms, familiarity, consumer experiences and understanding of benefits. The study's authors highlight how men seem to be more open to eating insects than women and note that the age range most receptive to trying them is between 40 and 59.

An alternative given the increase in population up to 2050

The considerable increase in the world's population forecast for the years up to 2050 due to improved living conditions in most countries calls for a search for alternative sources of protein. The increased costs of

producing animal proteins and growing environmental pressures in agriculture and livestock farming have led to a search for productive alternatives and innovative techniques for obtaining foods that take into account the nutritional, environmental and sociocultural aspects of food sustainability.

The use of insects as a food for human consumption, notes the UOC study, could meet these demands and prove to be a valid strategy for improving food security around the world. It should be borne in mind that insects can grow in organic remains (acting as bioconverters), take up less space and produce fewer greenhouse gases. For example, comparing the production of insects with that of beef, greenhouse gases are cut by 95% and energy consumption by 62%.

The potential benefits of edible insects, and more specifically those impacting the planet's health, have been more broadly tackled in the article "Edible Insect Consumption for Human and Planetary Health: A Systematic Review," also published in the *International Journal of Environmental Research and Public Health*, whose authors include some of those who penned the study on acceptance of their consumption.

More information: Marta Ros-Baró et al, Consumers' Acceptability and Perception of Edible Insects as an Emerging Protein Source, *International Journal of Environmental Research and Public Health* (2022). DOI: 10.3390/ijerph192315756

Marta Ros-Baró et al, Edible Insect Consumption for Human and Planetary Health: A Systematic Review, *International Journal of Environmental Research and Public Health* (2022). DOI: 10.3390/ijerph191811653