

# Healthy climate news: Fava beans could replace soy

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Tofu, soy milk and veggie mince. More and more Danes are opting to

supplement or completely replace their consumption of animal-based proteins with plant-based proteins. Climate considerations are part of their reasoning.

We often use soy-based protein when experimenting with vegetarian cooking. But, new research from the University of Copenhagen's Department of Food Science demonstrates that fava beans hold great promise as a non-soy source of plant protein. Moreover, favas are a better alternative for the environment:

"Many consumers are crying out for alternatives to soy, a crop that places great strain on the environment. This prompted us to find a method of processing fava beans in such a way that allows us to produce a concentrated protein powder. One of the advantages of fava beans is that they can be grown here, locally in Denmark. This is excellent news for the climate," explains Iben Lykke Petersen, an assistant professor at the University of Copenhagen's Department of Food Science, and one of the researchers behind the new study published in the journal *Foods*.

## **Far more climate friendly**

Fava beans are better suited for climate considerations because they can be cultivated locally, unlike soybeans, which are primarily grown in the United States and South America—and then exported to Denmark.

Moreover, numerous farms in Brazil and Paraguay have cleared large tracts of forest to create space for soybean fields. This has had severely [negative consequences](#) for wildlife, biodiversity and CO<sub>2</sub> emissions.

"Another important factor is that, unlike fava beans, lots of soy is genetically modified to be able to tolerate Roundup, an herbicide. Within this context, many consumers are critical of soy's environmental consequences," explains Iben Lykke Petersen.

## **New method makes fava powder that bursts with protein**

To find an alternative to environmentally taxing soybeans, the study's researchers tested various crops, looking for those with the greatest potential as a protein powder, while also being able to be grown locally. Here, fava beans outperformed lentils, amaranth, buckwheat and quinoa.

Using an incredibly unique method known as 'wet fractionation,' the researchers succeeded in concentrating fava bean protein and removing substances that would otherwise inhibit the digestion of the protein. This allows nutritious fava bean proteins to be more readily absorbed when consumed.

"Wet fractionation is accomplished by milling beans into a flour, and then adding water and blending the mixture into a soup. Thereafter, it becomes easier for us to sort out the less beneficial substances and produce an optimized product," explains Iben Lykke Petersen. She adds:

"Our results demonstrate that this method significantly increases protein content. Furthermore, through our tests, we can see that this protein is nearly as readily digested as when we break down protein from animal products, such meat and eggs."

Competitive color, taste and texture.

The content and nutritional quality of a protein is one thing. Taste is something else! Here too, fava beans can compete with soy and other plant-based [protein](#) alternatives. Iben Lykke Petersen explains that when fava beans are processed correctly, their proteins retain their naturally bright colour, along with a neutral taste and good texture.

"Manufacturers prefer a product that is tasteless, has a neutral color and a firm texture. Fava beans check each these boxes, unlike peas, which often have a very bitter aftertaste," she concludes.

Fava beans are grown primarily in the Middle East, China and Ethiopia, but are already available in Danish supermarkets and health food stores.

**More information:** Martin Vogelsang-O'Dwyer et al, Comparison of Faba Bean Protein Ingredients Produced Using Dry Fractionation and Isoelectric Precipitation: Techno-Functional, Nutritional and Environmental Performance, *Foods* (2020). [DOI: 10.3390/foods9030322](https://doi.org/10.3390/foods9030322)

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