

Researchers develop raw materials for protein from mealworms and crickets

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VTT has developed raw materials from mealworms and crickets which, due to their promising structure and flavour, can be used in the manufacture of foods such as meatballs and falafel. Credit: VTT

VTT Technical Research Centre of Finland has developed food

ingredients from mealworms and crickets which, due to their promising structure and flavour, have the potential to be used in the manufacture of foods such as meatballs and falafel. EU legislation will change in the coming years, and the farming of insects and their processing for consumption will become a business activity in Europe.

Mealworms and crickets are the most widely farmed [insects](#) in Western countries. A dry fractionation method developed by VTT can be used to easily produce insect fractions with varying flavours and degrees of coarseness: fine fractions contain small amounts of the insect chitin shell, which tends to feel rough on the tongue and have a strong meat-like taste, while coarse fractions are milder in flavour and contain more chitin.

Fat was removed from the insects prior to fractionation, due to which the insect fractions contained up to 65 to 80 percent crude protein.

Because insect fractions effectively bind water and fat, they are particularly suitable as ingredients in various solid foods. The fractions were tested as a raw material for meatballs and falafel balls in VTT's test kitchen, by replacing 5 percent to 18 percent of meatball or falafel dough with insect fractions. Insects are rich in high-quality protein—a small addition of the insect fractions into falafel dough even tripled the protein content of falafel balls.

Many consumers and the [food](#) industry are already interested in insects as a dietary source of protein. However, their industrial exploitation will require identifying the characteristics of insect raw materials and developing them into a form that is suitable for use in the food industry.

Insects have not yet been granted a novel food authorisation within the E.U., but it is expected that one will be granted in 2018. Insect products are already on sale in some European countries. Despite the lack of a

novel food authorisation, insects have become a major new food trend in Europe, although eating them whole seems unpleasant to many people. The widespread introduction of insects in [western countries](#) will require the development of techniques to process them into ready-to-use raw materials for foodstuffs.

Provided by VTT Technical Research Centre of Finland

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