No more words, lets cook with crickets: the optimization of cricket-based cookies and taralli

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The advantages of consuming insects are well known by everyone worldwide. They are mainly related to health, environment, and livelihood. Also, insects are highly considered tasty for Asian and African people, which consume them, both as the whole form and as ingredients. On the other hand, Western people still view entomophagy with feelings of disgust, even though they realize all the advantages related to edible insect consumption.
To date, the scientific community and food companies have all the instruments and data to develop new insect-based food products. An appropriate product design could improve the acceptability of new foods. For example, using edible insects as powder could be a good starting point to encourage people to consume new insect-based foods.
The present work aimed to optimise the formula of two insect-based foods: sweet cookies and salty "*taralli*". For the preparation of both products, traditional flour was replaced with different percentages of cricket powder (7 samples in both cases);. A three-component constrained simplex lattice design was used to obtain different formulations to be tested. Cookies were tested by 22 assessors by following the Ideal Profile Method; Taralli were tested by 14 assessors by following the Ultra Flash Profile Method. To optimize the formula, the desirability function (the best compensation of the ingredients to achieve ideal intensity from every single attribute) was used and the Ideal scores for each attribute were set to be targets to generate the optimal conditions. In the case of cookies, formulation with 37.7% wheat flour, 5.4% cricket flour and 23.8% butter was proposed to achieve 0.602 of desirability. On the other hand, in the case of *taralli*, the formulation with 56% of wheat flour, 6% of cricket powder and 22% of water was found as the optimal formulation with a desirability value of 0.74. In both cases, cricket powder significantly affected both colour and texture.
In conclusion, cricket powder influences the sensory characteristics of cookies and *taralli*, and needs to be sensibly used to meet the ideal profile. However, cricket powder results in a potential substitute for traditional flour for both sweet and salty products.