



"Young people and multidisciplinary research in applied life sciences"



**"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH
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Acheta Domesticus - Alternative source of protein intended for cocoa cream enrichment

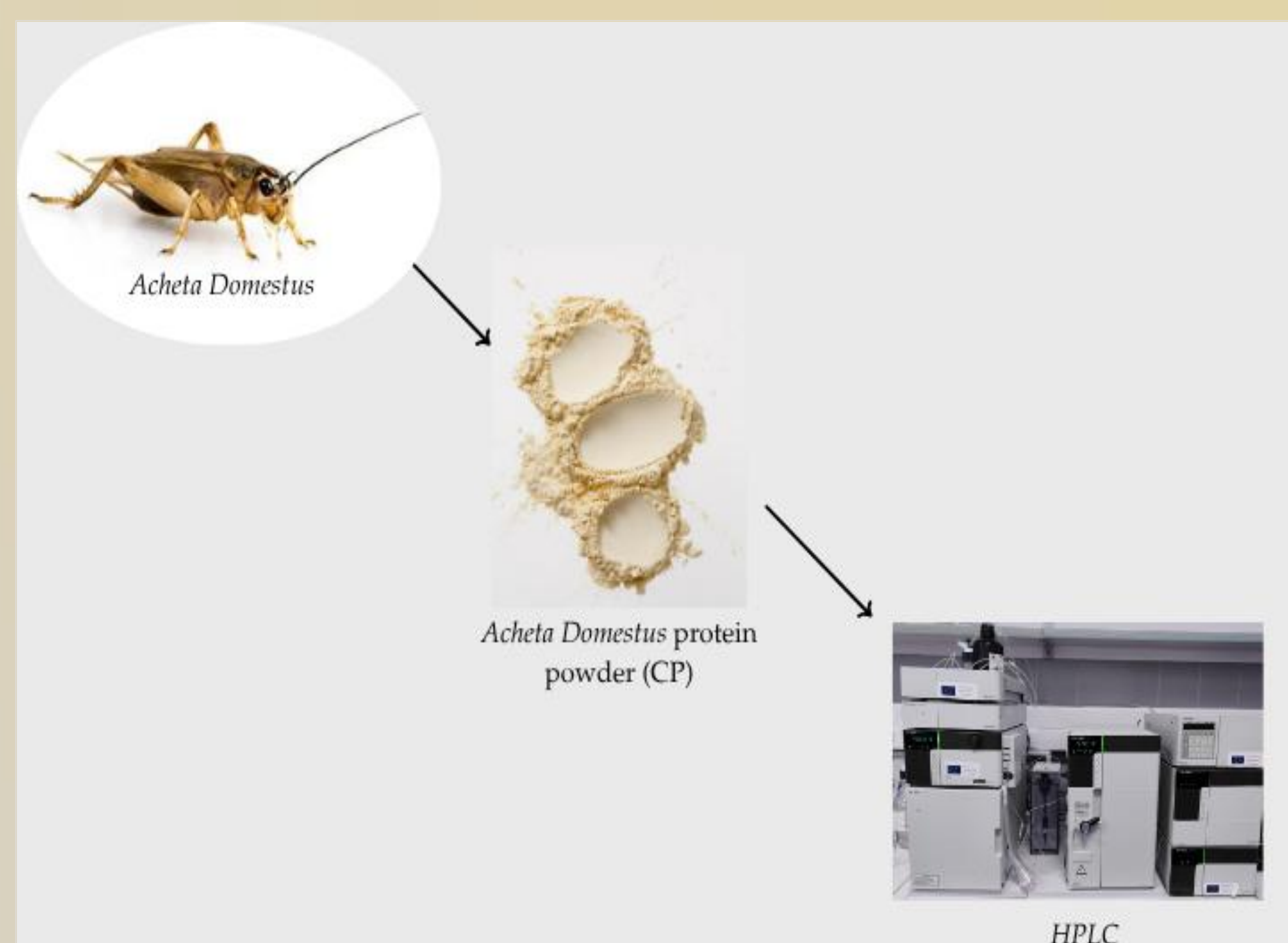
Milica STOŽINIĆ^{1*}, Ivana LONČAREVIĆ¹, Biljana PAJIN¹, Branislav ŠOJIĆ¹, Atilla GERE²

1 University of Novi Sad, Faculty of Technology Novi Sad, Department of food engineering, Bulevar cara Lazara 1, Novi Sad 21000, Serbia; e-mail: milica.stozinic@uns.ac.rs; ivana.loncarevic@uns.ac.rs; biljana.pajin@uns.ac.rs; sojic@tf.uns.ac.rs
2 Institute of Food Science and Technology, Hungarian University of Agriculture and Life Sciences, Villányi út 29-43, H-1118 Budapest, Hungary; e-mail: gere.attila@uni-mate.hu

* Corresponding author: milica.stozinic@uns.ac.rs

Abstract: Dietary habits have shifted throughout the last decade, leading to increased consumer demand for high – protein diet. New requirements are calling for greater amounts of protein intended for human use, and traditional protein sources are insufficient to meet this rising demand, creating a need for alternatives. Therefore, alternative sources of protein, such as insects, offer a promising protein source. *Acheta Domesticus* is one of the most common insects present in human diet. Compared to livestock farming, breeding these insects produces lower CO2 emissions and reduces water and land usage. Additionally, insect breeding generates less waste, that can further be used as a fertilizer due to high nitrogen and phosphorus content. This study aimed to determine the possibility of adding *Acheta Domesticus* protein powder in cocoa cream products. *Acheta Domesticus* powder (CP) was examined regarding the chemical and amino acid composition. Then, cocoa cream products were enhanced with the addition of 10, 12.5, and 15% of protein powder and analyzed. These advantages underscore *Acheta Domesticus* potential as a sustainable protein source.

- Material and method



- Results and discussions

Amino acid (mg/100 g)	CP
Aspartic acid	6.71 ± 0.41
Glutamic acid	9.29 ± 1.12
Serine	6.45 ± 0.94
Histidine	5.79 ± 0.35
Glycine	42.38 ± 7.41
Threonine	15.35 ± 2.39
Arginine	23.64 ± 3.59
Alanine	16.20 ± 2.61
Tyrosine	9.50 ± 1.09
Cystine	425.75 ± 76.75
Valine	6.28 ± 0.80
Methionine	17.71 ± 2.71
Tryptophane	3.37 ± 0.01
Phenylalanine	3.67 ± 0.23
Isoleucine	5.14 ± 0.61
Leucine	11.90 ± 1.79
Lysine	5.28 ± 0.70
Proline	n.d.

n.d. – not detected

- Conclusions

The results indicate that incorporating *Acheta domesticus* protein powder into cocoa cream products is a feasible way to enhance their nutritional value. This approach supports the development of sustainable, high-protein foods that align with modern dietary trends. Moreover, the use of *Acheta domesticus* contributes to environmental sustainability by reducing resource consumption and waste generation compared to conventional protein sources.

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