

Effect of additives to blanching water of mealworms

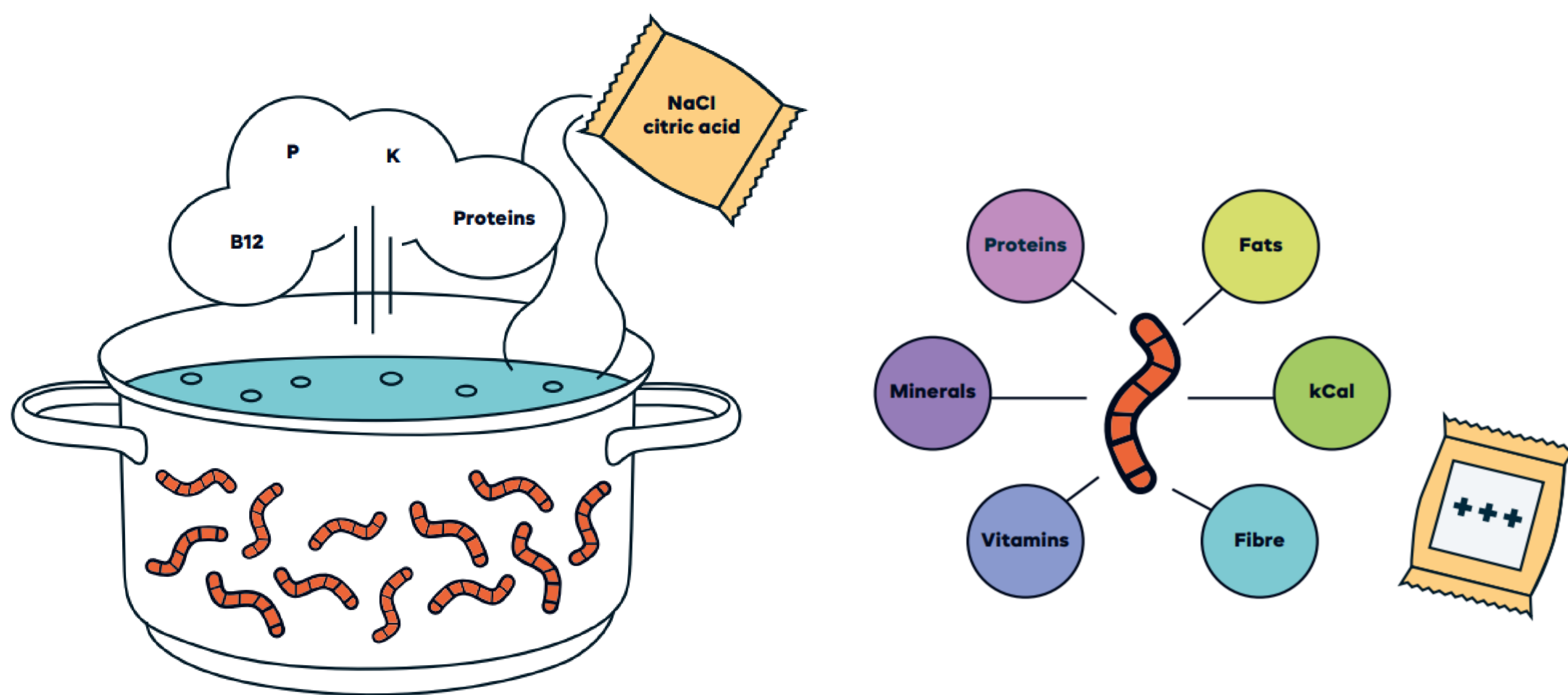
Sarah Goossens, Isabelle Noyens, Geert R. Verheyen, Sabine Van Miert

Radius Research group, Thomas More University of Applied Sciences, Belgium

INTRODUCTION

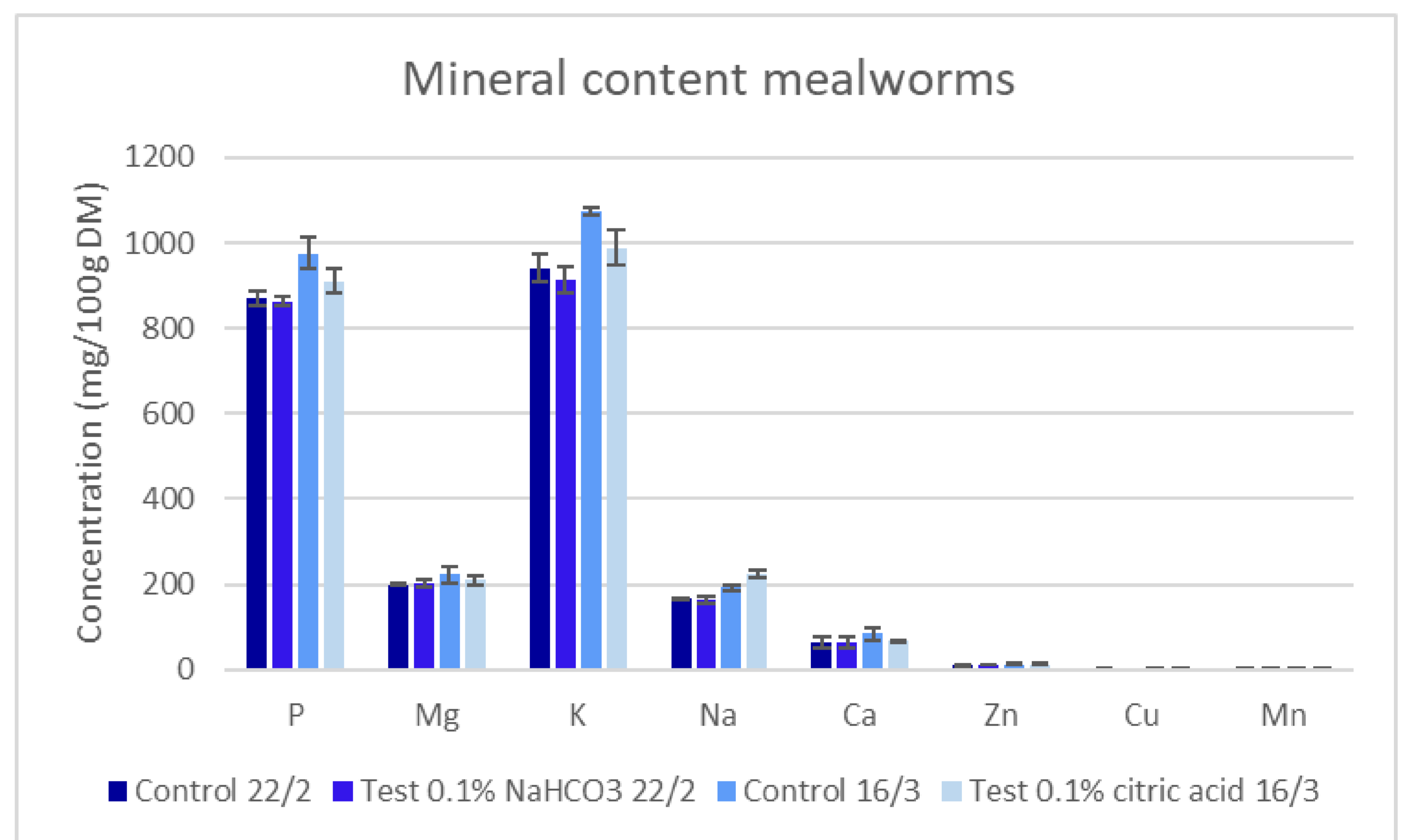
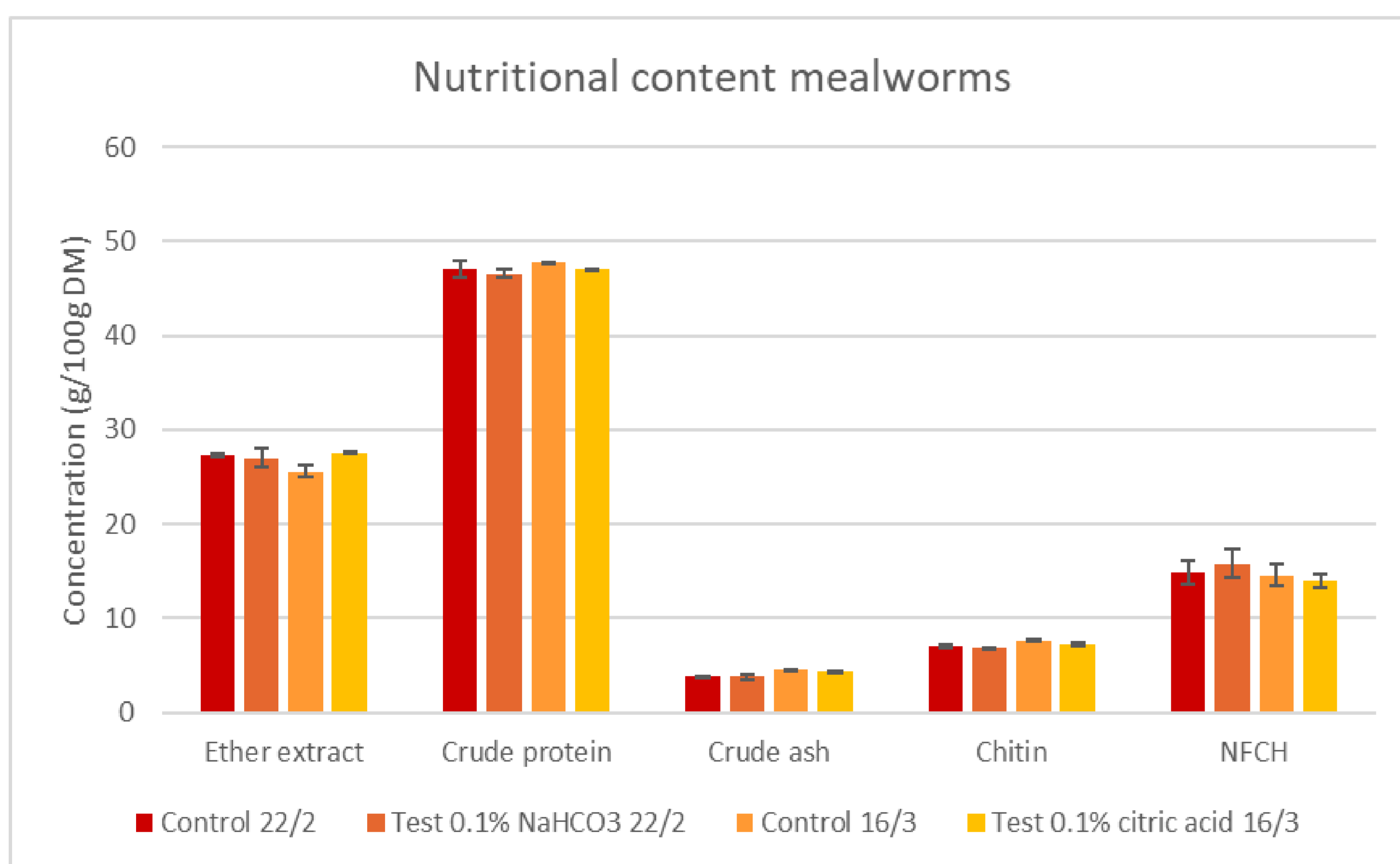
Insects are increasingly used in the food and feed industry. A commonly used first step in processing insects is blanching as it reduces the microbial load and enzymatic browning reactions. For process optimization, it was investigated whether adding additives to the blanching water of mealworms (*Tenebrio molitor*) reduces leaching of water-soluble nutrients. In this experiment, we focussed on the effect of the additives in blanching water on leaching behaviour at an industrial scale.

EXPERIMENTAL SETUP

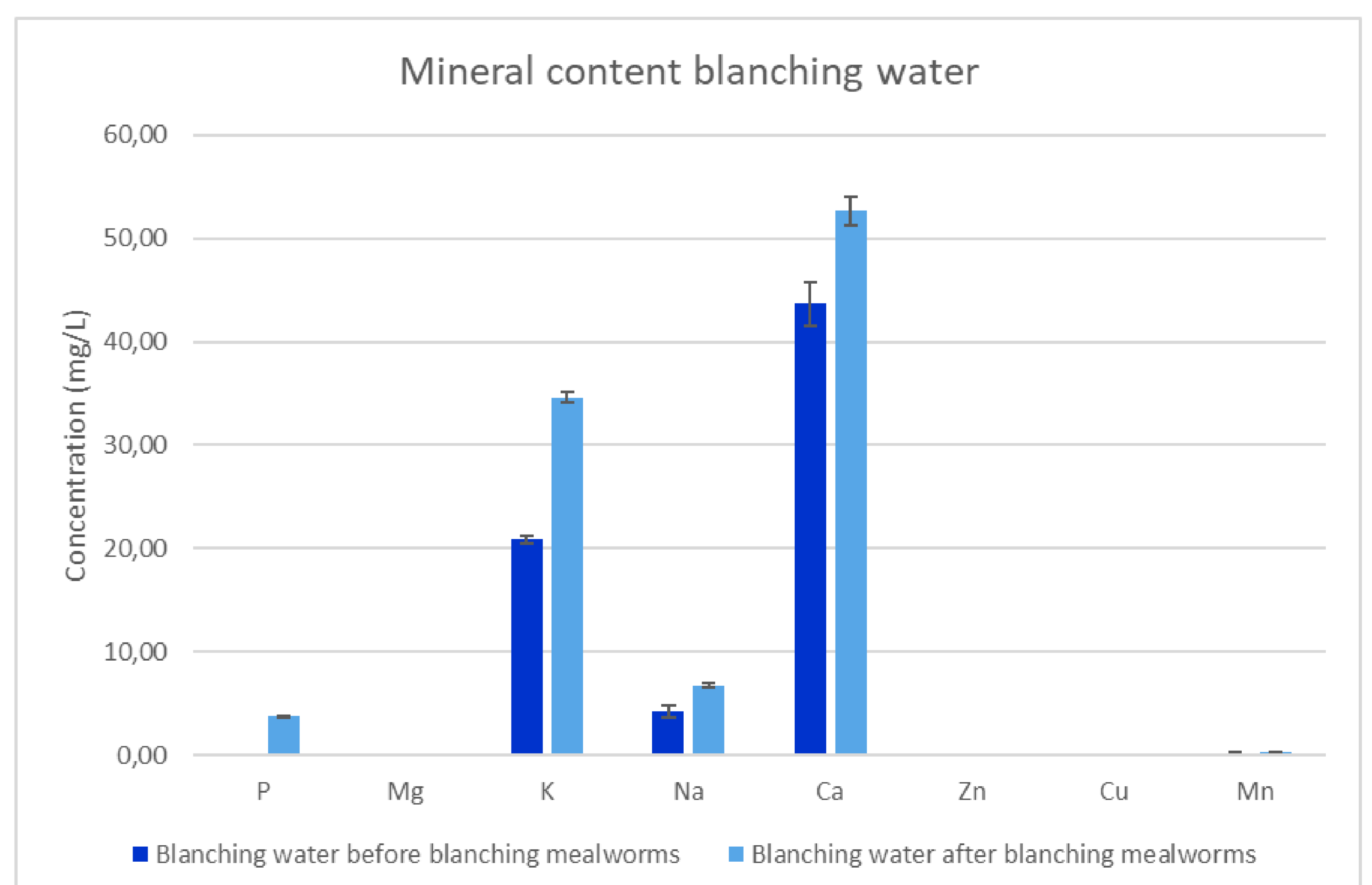


A batch of mealworms was blanched in boiling water during 2 minutes. A sample of the boiling water for blanching was taken before and after blanching the mealworms. After this control experiment, the additives were added to the boiling water (tested separately) and again a batch of mealworms was blanched. The blanching water was analysed for mineral content. Nutritional profile, mineral content and vitamin content was determined on the mealworms.

RESULTS



Sample	Vit. B12 (µg/100 g DM)	Vit. E (mg/g fat)	Vit. E (mg/100g DM)
Control 22/2	4.66 ± 0.10 ^a	2.12 ± 0.02 ^a	0.58 ± 0.00 ^a
Test 0.1% NaHCO ₃ 22/2	6.01 ± 1.26 ^a	2.23 ± 0.01 ^{ab}	0.60 ± 0.00 ^{ab}
Control 16/3	5.75 ± 0.52 ^a	2.78 ± 0.03 ^c	0.71 ± 0.01 ^c
Test 0.1% citric acid 16/3	4.58 ± 1.12 ^a	2.50 ± 0.01 ^d	0.69 ± 0.00 ^c



CONCLUSION

- No significant difference in nutritional profile of mealworms
- No significant differences in mineral content and vitamin B12 content of mealworms
- A significant difference in vitamin E content between fat of control and fat of mealworms blanched in water with citric acid
- No significant difference in mineral content of the blanching water

