Insects the Future Sustainable Protein Source

Kjaer, Julie (School: Nordsjaellands Grundskole og Gymnasium)

The studies suggest that in 2050 there will be 9 billion people on Earth. The global expansion of the population and wasteful consumption are going to increase the pressure on future food supplies, meaning we need to find a new and more efficient method to produce our food. It is particular the production of animal food sources what causes a load on the environment. By protecting the environment, we have to find a sustainable way to produce our food supplies without overwhelming the planet – Why not eat insects? This study investigates the potential of insects as a future sustainable food source. I have carried out two different experiments that focus on insects and mealworms. I therefore analyzed the potential on the basis of gas exchange in insects, and studied their growth increase from a growth trial. The first part of the paper uses biotechnology in order to describe the energizing processes taking place in living organisms respiration. This part is mainly based on articles, books and biotechnology related material. The second part focuses on the growth experiment of the mealworms made in our own laboratory. By using mathematical modelling, it is possible to predict the evolution of the model. In this paper, I have used mathematical modelling to determine my growth rate from a differential equation and thereby be able to predict when growth condition in my attempt is best. The results of my experiments and investigation show that mealworms are easy to breed, have a short life-cycle, a low CO2 excretion, and are resource saving. Therefore, I can conclude that insects, including mealworms, have the potential to be a possible food in future sustainable food production.

Awards Won: