

Will Mankind Return to the Eating Habits of its Ancestors via the Insect Culture Technology?

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Human being utilized any kind of feedstuff, as long as it was naturally available, for hundred thousand of years during our evolutionary process. Considering the ease of obtaining compared to hunting dangerous animals, the insect meal having excellent nutritional balance was probably a perfect choice of early civilizations.

Mankind somehow lost and forgot this behavior as it approaches to the present day. Although majority of some contemporary Asian or African societies have still been consuming insect, its consumption is no longer 'imaginable' in particularly for people of developed countries. Such that, when it comes to utilize insect - derived materials in our daily energy intake in present day, majority of the those might perceive it as quite irritating. However, it might be the exactly right time to change this vision since they are - directly or indirectly - about to jump from 'the ancient cave dinners' into the plates on our tables! You may even have had an 'insect consumption experience' without knowing anything. A perfectly fried chicken breast or a freshly roasted rainbow trout you are about to eat, might contain insect derived proteins! So, what is 'contemporary insect phenomenon' and how will change our daily lives?

Well, whatever your perception is, it seems, 'the modern caveman feeding habit' is one more time on the agenda of humanity. Commercial insect culture is to obtain raw materials for primarily animal feeds from biowaste or underutilised crops: Insect culture is one of the most productive and efficient method on eliminating any kind of non-hazardous bio waste. Basically, insect culture consists 2 main phases as animal production and tissue processing. The objectives of the culture are to obtain larval and adult insects depending on the final meal quality to be produced. They are then processed to oil and meal. The major outputs of the system are protein rich insect meal and high-quality insect oil. There are also some side streams such as fertilizer and chitin/other bioactive substances. Although there are some potentially producible insect species, meal worm and black soldier fly are the most popular due to biological and nutritional suitability.

After insect meal was approved as ingredient by the EC on aquafeed (for fish) in 2017, the potential of global insect culture industry was also started to move forward. Now, EC is also looking to approve the insect meal in poultry and pig diets soon, and this will further accelerate the industry.

At initial phases, the investment cost of an industrial size insect farm construction was quite high. However, thanks to the improved technology, the current production cost of insect derived materials in large scale has already become competitive, and it will be even more competitive in near future after reaching to intensive production capacity to meet global market demands.

What makes the insect culture so attractive? In short or midterm, insect culture can be evaluated as sustainable animal production accelerator factor. However, in the long run, insect culture has a great potential to feed the ever-increasing population that will reach to around 10 billion to 2050. There are already insect meal containing commercial food products such as breads or high protein bars for

human consumption in some EU countries. All these early attempts show that insect culture has a great potential to utilize all biological waste materials such household waste, food industry waste, agriculture waste etc.

Feed and food are 2 important issues for future generations. All our natural resources have been decreasing due to the overutilization and pollution for years, or they are under threat at least. Scientists have intensively paid attention to establish unique sustainable alternatives to tackle these problems. However, it seems deterioration speed of the natural resources is faster than those alternative sustainable attempts. Importance of insect culture must not be evaluated as geography wise. Nature has no borders. All environmental activists must take every opportunity to attract governments attention to environmental issues. Insect culture is definitely among those sustainable solutions. Therefore, in order to contribute to save our planet, a global action plan to create sustainable insect culture technology must be prepared by international decision-making bodies and this must also be immediately disseminated in global level.

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