

# Review of: "Aquaponics Unveiled: Efficient Household Farming"

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Potential competing interests: No potential competing interests to declare.

## Formal evaluation of the manuscript

*Aquaponics Unveiled: Efficient Household Farming*

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## Overview

The manuscript provides a general description of aquaponics principles. It appears very well confectioned, showing most principles and functions of aquaponic plants. It is up-to-date in that it shows timely concepts about the aquaponic productions. The style is almost perfect and the presentation is remarkably accurate and it becomes quite interesting both for “early” addicts and for specialists. English language is correct. It is an useful piece of work for several persons interested to the technical structure of an aquaponic system, because it discusses in detail the various possible solutions, with clarity and sufficient completeness. The terms “aquaponics” and “hydroponics” are used indifferently and they would need a deeper discussion to show any difference in the evolution of their meaning in scientific debates. On the whole, I suggest publication of this interesting review, with minor revisions.

## Specific comments

The description is complete and includes basic arguments, for the training of not experienced persons. However, a couple of points could be improved.

### Water Movement and Aeration

First of all, a deeper discussion of the biological materials is needed. The authors show plastic materials as the only possible choice. In contrast, it is well known that bacteria strains are selected according to the surface type and that the biofilm promoted on plastic surface is mainly due to very adhesive bacteria, often preferring anoxic environments, while more complex surfaces (at ultramicroscopic level), select less adhesive bacteria, as the aerobic strains operating nitrification processes. These topics would need some more discussion. Further, the type of materials used for tanks have been discussed, indicating the need for atoxic substances. However, this discussion should refer also to pumps, because some of them may contain metallic parts, or toxic plastics, and they are not adequate for the scopes of aquaponics.

## Discussion

It is correct but quite superficial. For example, a deeper discussion of various types of animals (fish, invertebrates, others) and various types of environments (freshwater, seawater) along with the possible primary producers (seagrasses, mangroves, terrestrial plants, aquatic plants) would make the discussion more complete. Finally, a few words were spent about the lighting systems (natural light vs. electrically powered) and the new possibilities offered by led light operated using solar panels, to assure consistency of the irradiance and correct intensity in various periods of the culture. As well, nothing was written about the photoperiod to apply for both the animals and the plants, in contemporaneous times or independently. I encourage the authors to expand these topics in order to make the paper open for a larger audience.

## References

The references are up to date and worth. However, the discussion of the points above highlighted will probably need to add some important references, for completeness.