Nutritious pond feed for intensive shrimp culture

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1 Background

- High stocking density
- High dependency of artificial feed
- Water quality deterioration
- **Waste accumulation**

INTENSIVE SYSTEM

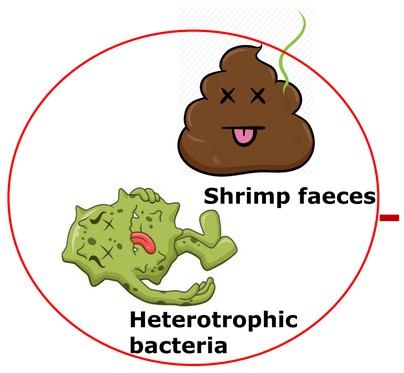
Not well-functioning food web
- low microbial activity
- low nutrient utilization

POND BIOTA

SHRIMP

- Low individual growth
- Stress

2 Problem



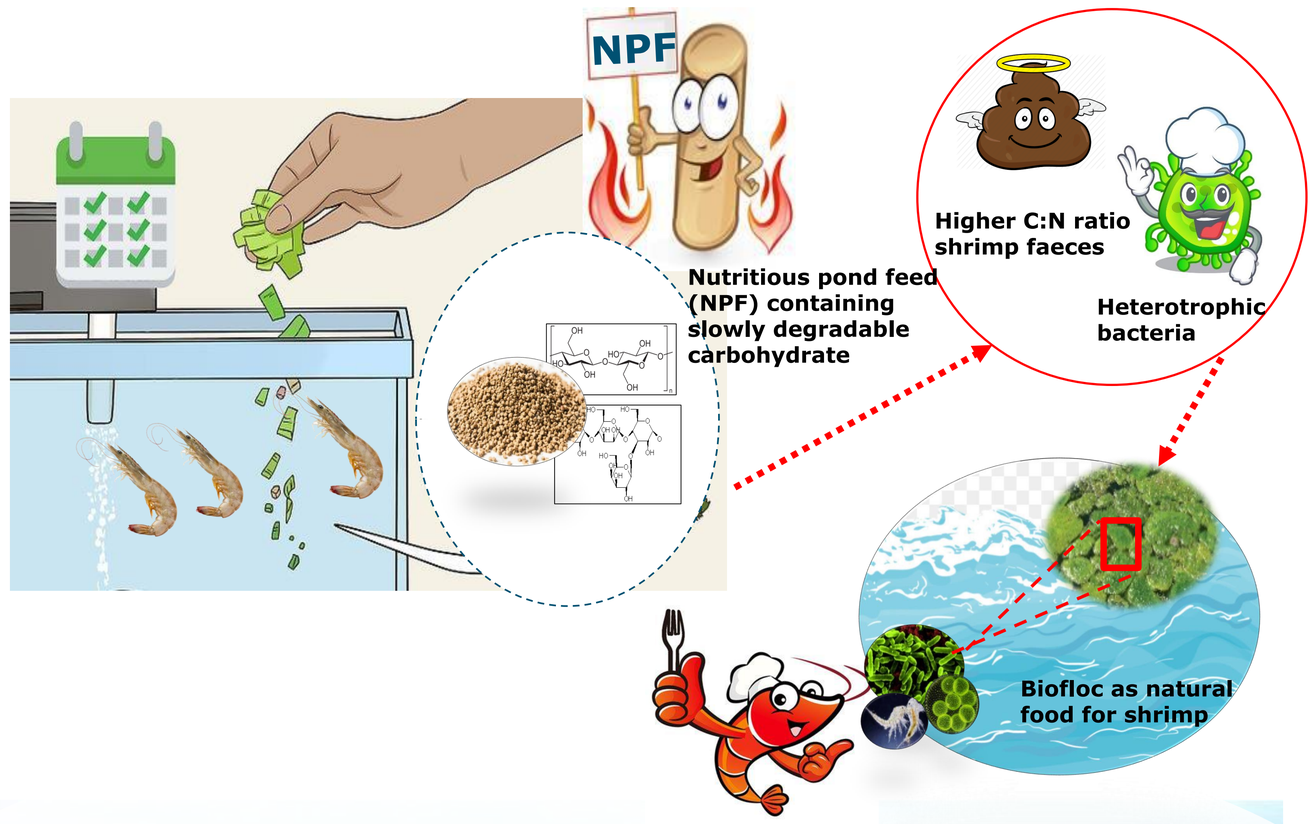
Water quality deterioration

Problem: mismatch stoichiometry (shrimp faeces quality is not similar with required nutrient quality for bacterial waste degradation).
Result: waste accumulation, pond water quality deterioration.

3 Aim

1. Develop nutritious food web in highly-intensive shrimp culture, by enhancing waste nutrient utilization
2. Improve system's carrying capacity by increasing contribution of natural biota to shrimp production

4 Concept



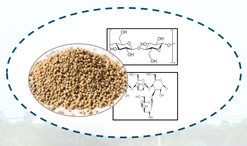
Nutritious pond feed containing high energy and slowly degradable carbohydrate can increase C:N ratio in shrimp faeces as required by bacterial degradation. Biolfloc, built by heterothrophic bacteria and their extracellular polymeric substances, can be used as additional food for shrimp.

5 Method

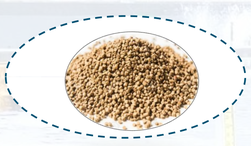
Biofloc system

VS

Recirculating aquaculture system (no biofloc)



Nutritious pond feed



Control feed

Parameter measured:
- Faecal quality/stoichiometry
- Biofloc formation and quality
- Shrimp growth performance
- Contribution of biofloc to shrimp growth

What is biofloc?

Heterogeneous aggregate of suspended particles and variety of microorganisms (bacteria, algae, fungi, invertebrates and detritus) associated with extracellular polymeric substances

Pictures sources: shutterstock.com, wikihow.com, wikipedia.com, 123rf.com, adra.org, iconfinder.com, fishmarket.ge, pondtrademag.com, sciencedaily.com, noxad.org, kisspng.com