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Characterization of detection and attractivity behaviour of the Pacific white shrimp *Litopenaeus vannamei*

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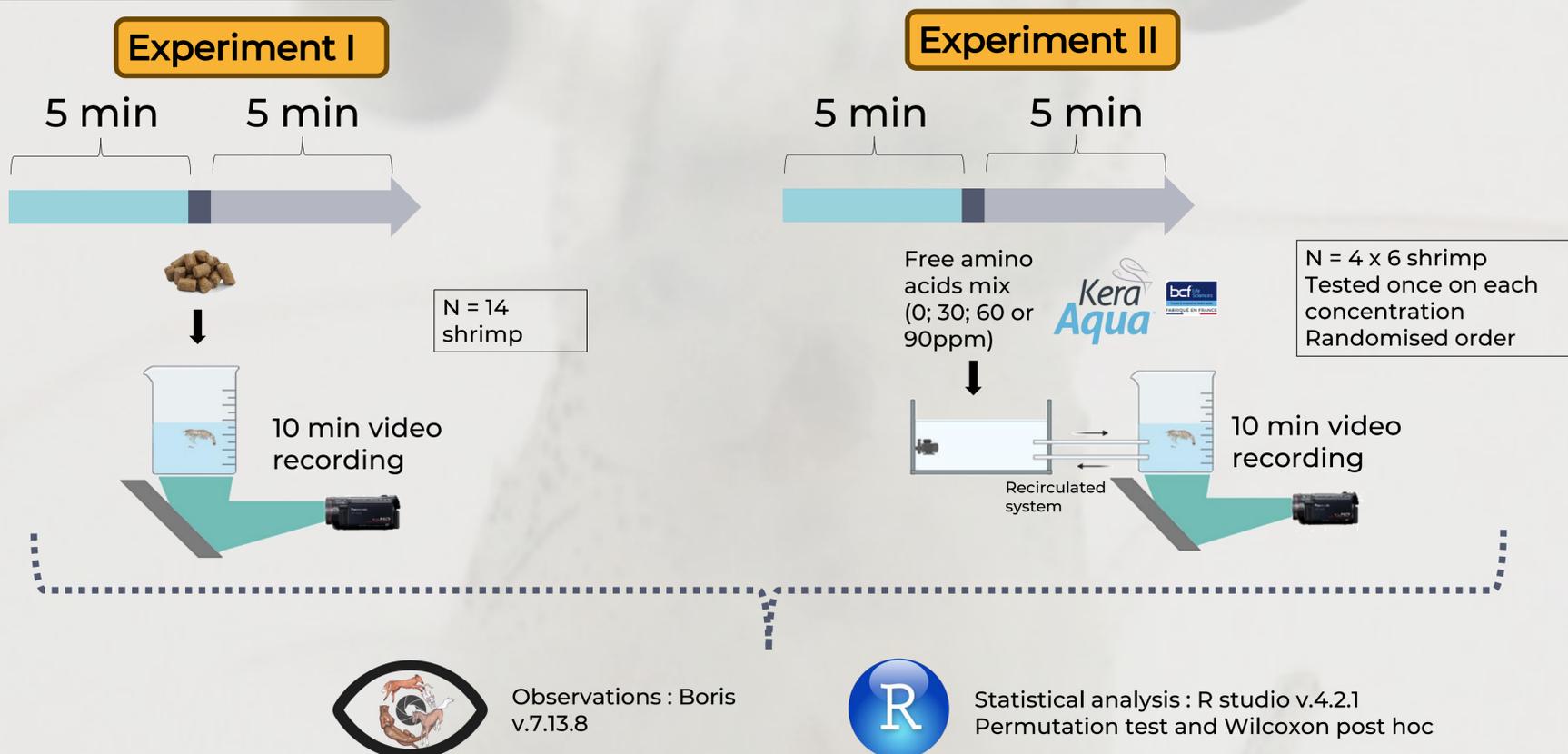
INTRODUCTION

Litopenaeus vannamei is a worldwide breed omnivorous shrimp. In farms it is fed with pellets contains a high proportion of marine animal by-products. Those by-products leads to unsustainable feed formulas and needs to be changed with alternative by-products. The goal for feed formulators is to make sure that those new formula are as attractive and palatable as the old ones, in order to not penalize the zootechnical performances of the animals. Ethograms such as the one established by Lee and Meyers (1996)¹ details the feeding behaviour in *L. vannamei*'s shrimp and can be used to evaluate feed's attractivity and palatability, but it can be approved thanks to new observation methods.

OBJECTIVES

1. Search for easily observable detection and attractivity behaviours in *L. vannamei* shrimp
2. Study the effect of the adding of pellet (Exp I) or free amino acids (Exp II) in those behaviours
3. Study the inter-individuals' variability of those behaviours

MATERIAL AND METHODS



RESULTS

1. Most observed behaviours before and after the stimulus adding: **antennal, antennular and scaphocerites flicking, eye beats and time spent freezing**
2. No or few significant effect of the adding of stimulus on those observed behaviours
3. **High inter individual differences** may explain the absence of significant effect of the stimulus adding on the observed behaviours. Allowed us to make an **ethogram of groups of behaviours** observed when adding a stimulus (Fig. 1)

	Pellet			Amino acids		
	Behaviour group 1	Behaviour group 2	Behaviour group 3	Behaviour group 1	Behaviour group 2	Behaviour group 3
Movement	↗	=	↘	↗	=	↘
Antennal flicking	↗	↗	=	↗	↘	↗
Eye beat	= or ↘	= or ↘	= or ↘	↗	=	↘
Scaphocerites flicking	=	= or ↘	= or ↘	↗	↘	↘
Antennular flicking	=	= or ↘	=	= or ↘	=	↘

Fig. 1: Ethograms of groups of behaviours for detection and attractivity behaviour of *L. vannamei* shrimp confronted to pellets (Exp I) or amino acids (Exp II)

DISCUSSION – CONCLUSION

The results of this preliminary study allowed us to point **several behaviours easily observable** in *L. vannamei*: antennal, antennular and scaphocerites flicking, eye beats and time spent freezing. Those behaviours evolved differently for each shrimp, when confronted with a feed stimuli. We managed to dispatch the shrimp into **three groups of evolution of detection and attractivity behaviour** for each type of tested stimuli. Those categories of behaviour may need to be taken into account to rate precisely the detection and attractivity behaviour for *L. vannamei*. It could be interesting to further this study with a higher number of individuals or to test shrimp in groups.

¹ Lee and Meyers (1996). Aqua. Nut. 2, 157-164