

# SPIDER ECOPHYSIOLOGY 29章

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# CHAPTER 29 ARTIFICIAL DIETS FOR SPIDERS

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## 29.1 Introduction

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## 29.3 Factors to Be Considered in Formulating Artificial Diet for Spider Rearing

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# 29.1 INTRODUCTION

農業害虫の天敵としてクモが有効、そのために飼料の工夫が必要。

**van Hook(1971) found that the wolf spider, *Lycosa* sp. consumed 21% of the total arthropods in a grassland ecosystem.**

**Clarke & Grant (1968) indicates that spiders managed the populations of the Collembola and other insects.**

**Amalin et al.(2009) reported the diversity of spiders and low insect pest populations in the agricultural buffer zone.**

**Riechert & Bishop (1990) spider argumentation led to a 60% reduction in pesticide use.**

## 29.2 クモの人工餌の工夫

Peck & Whitcomb (1968) fed *Cheiracanthium inclusum* and *Gladicisa gulosa* on artificial diet consisting of homogenized insects.

Smith (2008) reared the *Poltys* on a nonliving food mix based on houseflies, pollen, egg and moths.

Amalin et al. (1999, 2001) reared three species of hunting spiders, *C.inclusum*, *Tracheras volutus* and *Hibana velox* on three different food mixes consisting of milk, egg yolk, and soy bean, as follows: (1) milk+ egg yolk, (2) soybean liquid (3) combination diet (milk + egg yolk + soybean)

徘徊性種に有効、育てたクモは交尾し産卵もした。

# 人口餌のレシピは？

生の卵黄に牛乳と豆乳を混ぜる。液状。

クモが食べたかどうかを調べるために緑色食用色素を混ぜた。

Glass vial で飼育したクモに、liquid diet soaked in a cotton swabを与えた。腹部が緑色に変わったことで人工餌を食べたことが分かった。

ブラジルドクシボグモは餌を探索するのに嗅覚刺激を使っていることが判明している (Hostettler & Nentwig, 2006) が、同様のことが今回の徘徊性3種(コマチグモの一種、ネコグモの一種、イズツツモの一種)にもあると思われる。

栄養成分を分析するとクモの成長に必須な栄養素は備わっていた。







# 原報に当たると

Amalin, Pena, Reiskind & Sorley, 2001. Comparison of the survival of three species of sac spiders on natural and artificial diets. J. Arachnology, 29: 253-262.

Soybean liquid (non-dairy beverage, Edensoy Eden foods inc.)

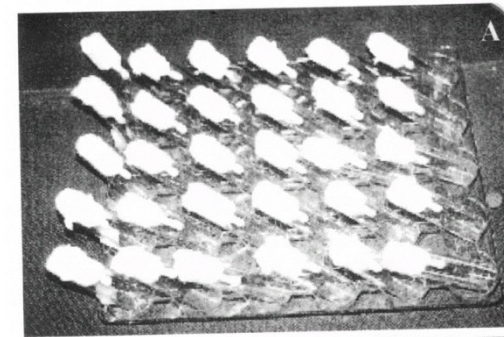
Milk + yolk mixture (100mL homogenized whole milk + 1 fresh chicken egg yolk) and their combination ( 1:1 soybean and milk + egg yolk mixture )

The diet was replaced with

fresh ingredients on a cotton swab

every two days. 30 spiderlings reared.

All vials were kept in an incubator at 27 °C, 80% RH and a L:D 12:12 photoperiod.





le 2.—Percentages of survival of *Hibana ve-*  
ring 10 weeks on three different artificial di-  
der laboratory conditions at 27° C and 80%  
leans followed by the same letters in the same  
re not significantly different ( $P \leq 0.05$ ) ac-  
g to Duncan's Multiple Range Test.

Artificial diets		
Milk + yolk	Soybean	Combination
86.67 a	95.53 a	95.57 a
86.63 a	95.53 a	95.57 a
68.87 b	93.30 a	95.57 a
60.00 b	86.70 a	88.87 a
46.67 b	77.77 a	86.67 a
39.97 b	73.33 a	66.67 a
26.67 bc	53.33 ab	57.77 a
22.33 b	51.10 a	51.10 a
17.80 b	42.20 a	42.23 a
17.80 b	42.20 a	42.23 a

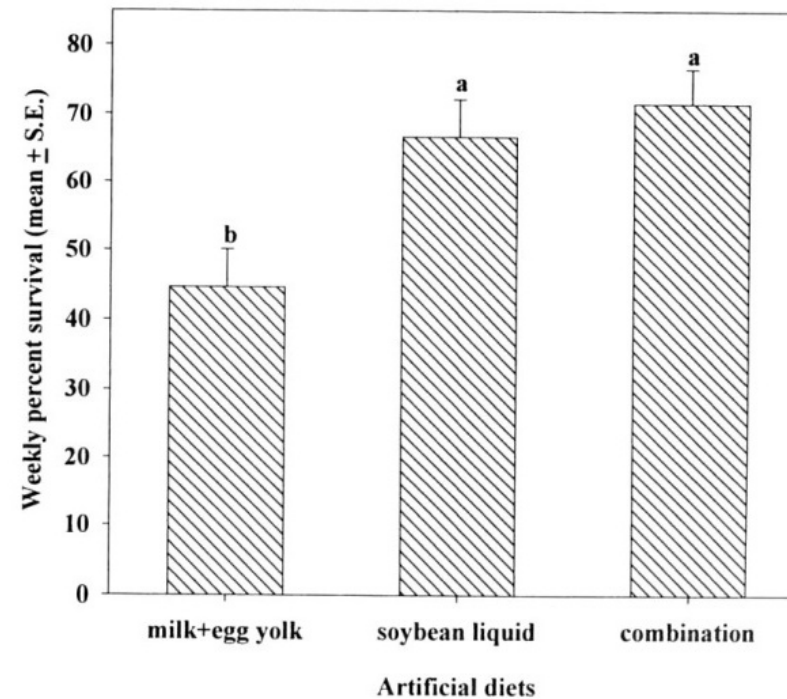


Figure 2.—Mean weekly survival of *Hibana ve-*  
*lox* reared on different artificial diets. Bars with the  
same letters are not significantly different according  
to Duncan's Multiple Range Test ( $P \leq 0.05$ ).

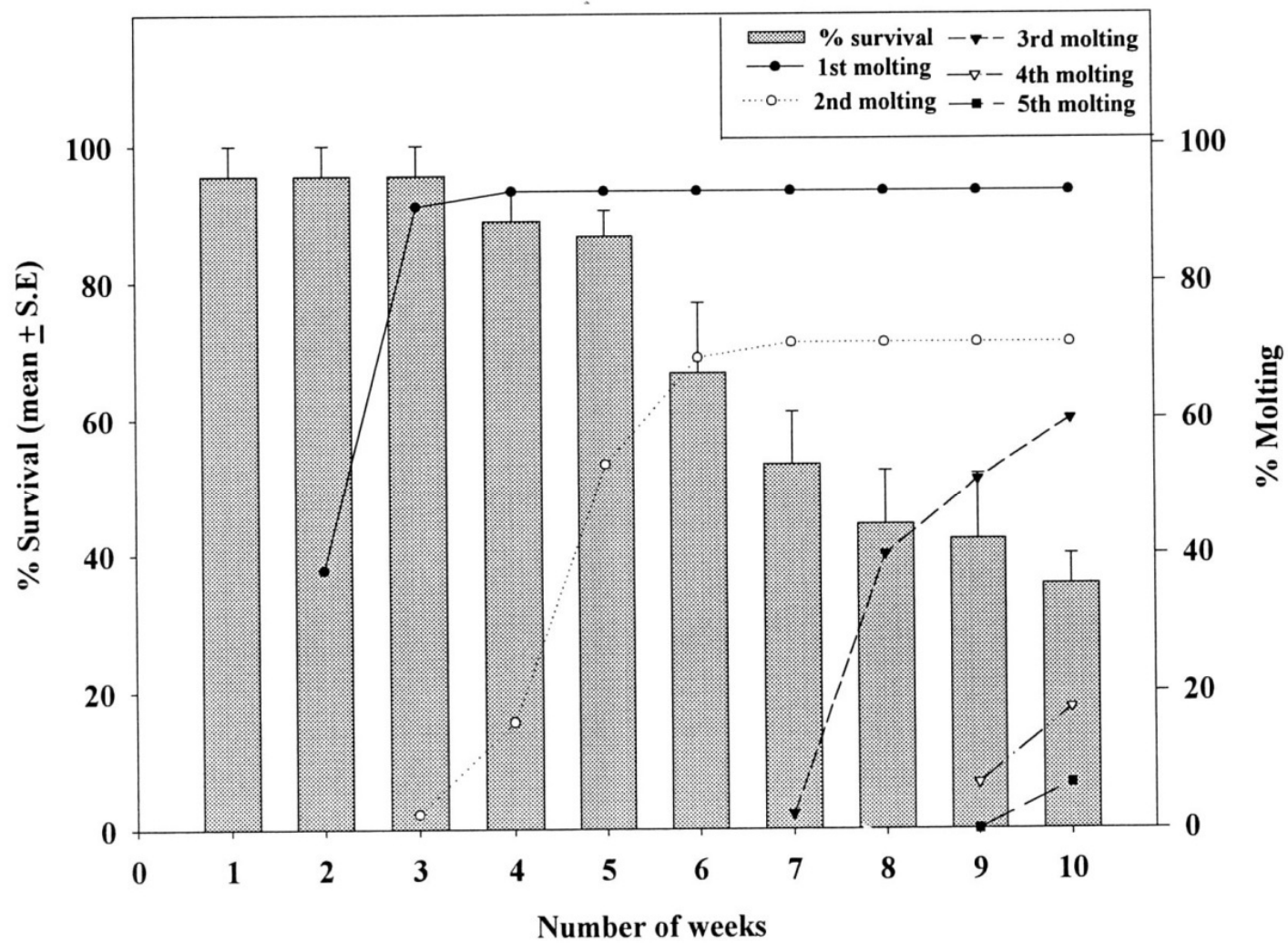


Figure 5.—Weekly percentages of survival and molting of *Hibana velox* reared on combination diet.

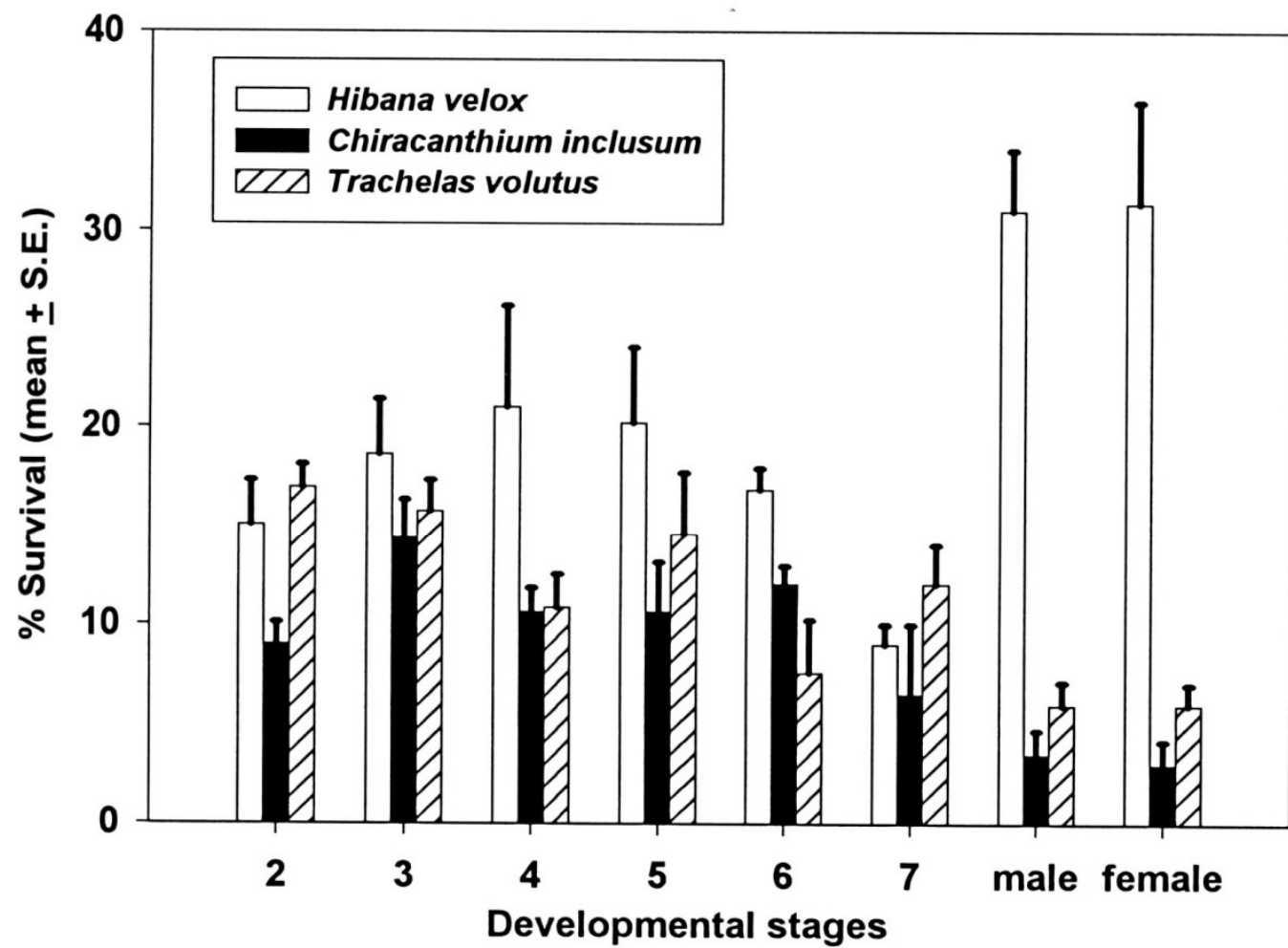


Figure 6.—Survival of developmental stages of *Chiracanthium inclusum*, *Hibana velox*, and *Trachelas volutus* reared on combination diet.

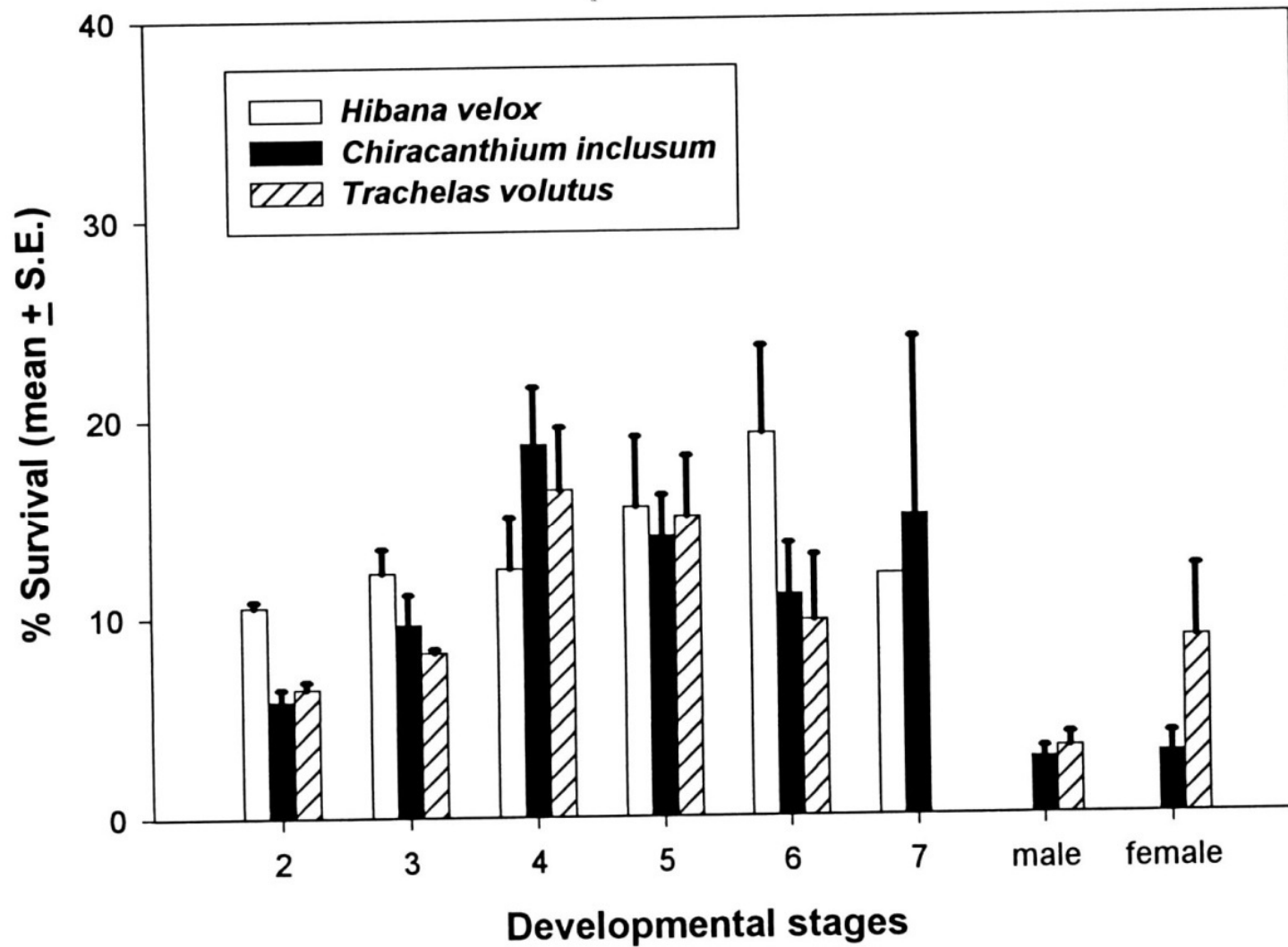


Figure 7.—Survival of developmental stages of *Chiracanthium inclusum*, *Hibana velox*, and *Trachelas volutus* reared on adults of *Drosophila*.