



Digital supplementary material to

RENYARD, A., HOVEN, K., GOODING, C., PETROV, J., CHALISSERY, J.M. & GRIES, G. 2024:
Contrasting effects of amino acid types on foraging behaviour, colony growth, and worker
mortality in red ants and carpenter ants. – Myrmecological News 34: 191-202.

The content of this digital supplementary material was subject to the same scientific editorial processing as the article it accompanies. However, the authors are responsible for copyediting and layout.

1 **Tab. S1** Modelled estimated marginal means (EMMs) and 95% confidence intervals (CIs) of
 2 proportional consumption of aqueous amino acid solutions by colonies of *Camponotus modoc*
 3 and *Myrmica rubra*. We also report pairwise comparisons between treatments and their Tukey
 4 adjusted p-values.

Exp. #	Treatment	EMMs (CIs)	Contrast	Z ratio	P value
<i>H1</i> : Colonies with brood preferentially forage for EAAs rather than non-EAAs (Exps. 1–4)					
<i>C. modoc</i>					
1	EAAs + non-EAAs	0.77 (0.59–0.89)	EAAs + non-EAAs vs non-EAAs	5.09	<0.0001
	Non-EAAs	0.18 (0.08–0.35)	EAAs + non-EAAs vs Water	5.60	<0.0001
	Water	0.12 (0.05–0.27)	Non-EAAs vs Water	0.87	0.65
2	EAAs + non-EAAs	0.54 (0.46–0.62)	EAAs + non-EAAs vs EAAs	2.53	0.03
	EAAs	0.41 (0.32–0.50)	EAAs + non-EAAs vs Water	11.59	<0.0001
	Water	0.08 (0.05–0.12)	EAAs vs Water	8.51	<0.0001
<i>M. rubra</i>					
3	EAAs + non-EAAs	0.88 (0.73–0.95)	EAAs + non-EAAs vs non-EAAs	8.03	<0.0001
	Non-EAAs	0.07 (0.03–0.16)	EAAs + non-EAAs vs Water	8.78	<0.0001
	Water	0.08 (0.04–0.15)	Non-EAAs vs Water	-0.25	0.97
4	EAAs + non-EAAs	0.44 (0.22–0.68)	EAAs + non-EAAs vs EAAs	-0.16	0.97
	EAAs	0.46 (0.24–0.69)	EAAs + non-EAAs vs Water	2.06	0.10
	Water	0.18 (0.07–0.40)	EAAs vs Water	2.20	0.07

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7 **Tab. S2** Modelled estimated marginal means (EMMs) and 95% confidence intervals (CIs) of the
8 number of larvae, workers and queens in *Myrmica rubra* colonies after a 16-week rearing
9 experiment (Exp. 5). Colonies were reared on nutrient solutions containing both essential amino
10 acids (EAAs) and non-essential amino acids (non-EAAs; Tab. 2), or just EAAs or non-EAAs.
11 We also report pairwise comparisons between treatments and their Tukey adjusted p-values.

Caste	Treatment	EMMs (CIs)	Contrast	Z ratio	P value
Larvae	EAAs + non-EAAs	10.9 (6.42–18.50)	EAAs + non-EAAs vs EAAs	4.36	<0.0001
	EAAs	2.2 (1.10–4.42)	EAAs + non-EAAs vs non-EAA	4.93	<0.0001
	non-EAAs	1.6 (0.75–3.44)	EAAs vs non-EAA	0.73	1
Workers	EAAs + non-EAAs	29.9 (28.20–31.71)	EAAs + non-EAAs vs EAA	2.16	0.09
	EAAs	27.7 (26.06–29.44)	EAAs + non-EAAs vs non-EAA	1.86	0.12
	non-EAAs	28 (26.35–29.75)	EAAs vs non-EAAs	-0.30	1
Queens	EAAs + non-EAAs	1.8 (1.49–2.17)	EAAs + non-EAAs vs EAA	-0.52	1
	EAAs	1.9 (1.61–2.24)	EAAs + non-EAAs vs non-EAA	-0.52	1
	non-EAAs	1.9 (1.61– 2.24)	EAA vs non-EAAs	0	1

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