

FOOD UTILIZATION BY ATTAGENUS MEGATOMA AND ANTHRENUS FLAVIPES

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**ABSTRACT:** The utilization of food substrates by larvae of the black carpet beetle, *Attagenus megatoma* (F.), and the furniture carpet beetle, *Anthrenus flavipes* LeConte, was studied using both gravimetric and chemical procedures. When larvae of *A. megatoma* or *A. flavipes* fed on untreated moth test fabric (100% wool) or on fabric treated with cholesterol and vitamins, little feeding or growth occurred. However, the addition of minerals to the wool was highly stimulatory to both feeding and growth. A mineral analysis of the wool indicated that it contained only 15 ppm potassium and 67 ppm sodium and thus was deficient in these 2 nutrients. With *A. flavipes*, the addition of K to the wool raised the efficiency of conversion of digested food into body substance (E.C.D.) from 6.6% to 17.3%. Although sodium alone had little effect, there was a definite synergistic effect when both elements were added. The E.C.D. increased to 26.2% and larval feeding and growth were comparable to the positive control. These studies provide clear examples of how deficiencies of specific individual nutrients could affect the conversion efficiencies of the ingested food. The addition of amino acids in which wool is known to be deficient did not affect larval feeding or growth. However, the addition of glucose to the wool lowered the food utilization indices with low concentrations of glucose (0.1% wt/wt) being inhibitory to feeding.

The digestibility of casein-glucose based diets by larvae of *A. megatoma* was inversely proportional to the casein concentration. Nevertheless, the larvae were more efficient in the conversion of the high protein diets into body substance. When casein was replaced with a mixture of amino acids, the rate of diet consumption was significantly lower; however, the more efficient utilization of the amino acid diet resulted in a growth rate comparable to that obtained on the all-casein diet.

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Organizers' Note: This presentation was a compilation of three papers to be published elsewhere.

Baker, J. E. Influence of nutrients on the utilization of woolen fabric as a food for larvae of *Attagenus megatoma* (F.) (Coleoptera: Dermestidae). J. stored Prod. Res. (In press)

Baker, J. E. Protein utilization by larvae of the black carpet beetle, *Attagenus megatoma*. J. Insect

Physiol. (In press)

Baker, J. E., and Schwalbe, C. P. Food utilization by larvae of the furniture carpet beetle, *Anthrenus flavipes*. (Submitted to Entomol. exp. appl.)