

PHENOTYPIC PLASTICITY OF *Rhyzopertha dominica*
PHEROMONE SIGNALING: THE EFFECTS OF DIFFERENT
HOSTS AND PRESENCE OF CONSPECIFIC FEMALES ON
MALE PRODUCED AGGREGATION PHEROMONE

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Abstract—Male *Rhyzopertha dominica* (F.) (Coleoptera: Bostrichidae) release an aggregation pheromone consisting of a blend of two components, dominicalure 1 (D1) and Dominicalure 2 (D2). Pheromone from single insects, in different contexts, was collected and measured to determine if this signal is phenotypically plastic. Release rates were lowered when males were moved from maize grains to groundnut kernels or when moved from solitary occupation of maize grain to grain occupied by seven females. The pheromone release was increased again once these moves were reversed. The release of D1 was more affected than D2: thus, on groundnuts or in the presence of females, less pheromone was released and the proportion of D1 in the blend was lowered. Possible reasons for the modifications of the signal are discussed.

Key Words—*Rhyzopertha dominica*, Coleoptera, Bostrichidae, aggregation pheromone, dominicalure 1, dominicalure 2, phenotypic plasticity, host effect, conspecific effect, signal modification.

INTRODUCTION

The extent to which pheromone signals are honest indicators of a signaler's genes and environment is a crucial consideration when attempting to investigate the evolution of signaling systems (Smith, 1991; Johnstone, 1995). Sexual selection of signaling behavior is increasingly being linked to direct benefits acquired by the

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