

INTRODUCTION

The chemical ecology of plant–insect interactions is a rapidly expanding field of research with a growing scientific literature. This Memoir contains several papers developed from the proceedings of a symposium held in October 1989 at the Entomological Society of Canada meetings in St. John's, Newfoundland. They represent a broad cross section of current thought and new research in the field, with emphasis on how basic research can lead to practical applications in pest control. At a fundamental level, Paul Albert describes the effect of primary plant metabolites and waxes that influence the feeding behaviour of a notorious forest pest, the spruce budworm, and the implications of the research for management of this pest. Isman et al. present the results of laboratory and field trials toward the development of the promising botanical insecticide, neem, possessing antifeedant, growth-regulating, and systemic properties, to pest problems in northern temperate agriculture. Photoactivated substances from plants are demonstrated by Fields et al. to be among the most potent mosquito larvicides known, but their toxic effects can be avoided by several adapted plant-feeding insects. Houseman et al. describe some of the pitfalls in the possible application of plant protease inhibitors in insect control and demonstrate how a more sophisticated approach to protease inhibitors in host–herbivore interactions may lead to the design of successful transgenic systems. Sinden et al. describe progress toward Colorado potato beetle control through the use of beetle-deterrent leptines found in wild potatoes. It is a general conclusion of the symposium that there is much to be learned from natural defences of plants and the adaptation of phytophagous insects to these in designing novel and successful pest control strategies.

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