

Contents

I. Introduction	11
II. Methods of collecting, preservation and identification of material	13
III. Morphology and anatomy	18
Egg	18
Larva	18
Praepupa	19
Pupa	19
Imago	19
IV. Taxonomy	24
Literary review	24
Taxonomic characters	26
Specific criteria	28
A review of genera and species	30
Key to the genera, subgenera and species (♀♀)	80
V. Distribution	93
VI. Bionomics and ecology	96
Development	96
Progeny	97
Sex ratio	98
Reproductive capacity	98
Longevity of adults	99
Food of adults	101
Effect of temperature on the rate of development	102
Seasonal occurrence. Hibernation. Diapause	103
VII. Host and parasite interrelationship	106
Oviposition	106
Host specificity	107

Host specificity development	107
Host specificity phases	108
Factors influencing the host specificity	112
Host and parasite	116
Terminology	116
Host and parasite relationship in ontogeny	119
Host and parasite relationship in phylogeny	122
Unnatural host propagation	146
VIII. Superparasitism	148
IX. Aphid parasites and aphid attending ants relationship	149
The division of parasites with regard to their relation to the aphid and ant relationship	149
Aphid attending ants and aphid parasites relationship	151
The ant and aphid and parasite association in relation to the natural limitation of aphids by parasites	152
X. Natural enemies	153
Plant kingdom	153
Animal kingdom	153
Effectiveness of natural enemies	156
XI. Foci in nature	157
Terminology	157
Life-cycle of aphids and foci of aphid parasites	157
Types of foci	159
A review of the aphidiid fauna of different types of habitats with respect to the classification of foci	163
A scheme of a parasite focus research	177
The significance and protection of foci of aphid parasites	178
XII. A review of pest aphids in agriculture and forestry and their parasites	180
A. Agriculture	
Cereal grains	181
Forage crops	181
Leguminous crops	182
Oil crops	182
Vegetable crops	182
Potato	182
Sugar beet	183
Hop	183
Tobacco	183
Fruit trees and shrubs	183
B. Forestry	
Forest trees, shade trees, ornamental trees	186
XIII. Host and parasite catalogue	190

XIV. Natural limitation and control of aphids by parasites	205
Damage of plants caused by aphids and possibilities of its prevention through aphid parasites	205
Natural limitation of aphids by parasites	206
Control of aphids by parasites	208
Biological control	208
Integrated control	214
Summary	224
References	226
Index	239