

SYMPOSIUM: NEW TECHNOLOGIES FOR THE TAXONOMIC  
IDENTIFICATION OF ARTHROPODS

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## PREFACE

According to classical alpha-taxonomy a species is defined as a group of populations with similarity in appearance. All the individuals of a species are considered to be relatively uniform in anatomical features and clearly separable from other species. Type specimens are used with the presumption that they possess all the essential features of the species. Since the advent during the mid-1970s of electrophoretic methods of uncovering hidden genetic variability, studies have established that natural populations are highly variable. There is no single individual or a given population that represents the entire gene pool of a species. Genetic variability among populations reveals geographical, temporal, clinal and other ecologically related patterns. Unidirectional or bidirectional hybrid sterility has been demonstrated within natural populations that were almost morphologically inseparable. These observations led to the genetic concept of a species. Genetical species can be defined as groups of actual or potentially interbreeding populations reproductively isolated from other such groups. Thus populations of the same species are actually or potentially capable of exchanging genes; i.e., they share a common gene pool. By inference, populations of different species do not share a common gene pool and by definition are said to be reproductively isolated. Under this concept, morphologically indistinguishable, but genetically distinct species are called sibling species. Laboratory hybridization tests and comparative studies of karyotypes have traditionally been the methods for recognition of sibling species. Recently, the entire area of taxonomy is undergoing revolution in concepts and methodologies. Electrophoretic, chemical, and recombinant DNA techniques aided by computer programs, have greatly facilitated the recognition of new genetical species. This symposium endeavors to address these new technologies for taxonomic identification of arthropods.