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SHORT COMMUNICATIONS

IDIOXENIA VERSUS SYNOXENIA IN ECTOPARASITES

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Abstract. Various forms of relationship between parasites and host species are discussed and new terms for some of them are proposed.

The terms sympatry and allopatry, common in zoogeography, were used in parasitology to designate the existence of congeneric species on the same host species or, to the contrary on different host species (e.g. Eichler 1963, Tischler 1975). Kéler (1959) designated the occurrence of two or more congeneric species on one host individual as sympatric distribution and on one host species as parekous distribution. This last term is unsuitable because parekia designates another biological phenomenon viz. companionship with no permanent physical contact (Odening 1976), or tolerated companionship (Tischler 1975). Also the two first mentioned terms do not reflect satisfactorily the true relationship existing in host-parasite distribution in nature, the sympatry having not always exactly the same sense. Eichler (1966) proposed therefore the terms synhospitalic and allohospitalic species.

Recently, Gaud and Atyeo (1976) showed in their interesting study some examples of discordances in the ranges of geographic distribution of feather mites and their hosts. *Proctophyllodes troncatus* Robin and *P. orientalis* Gaud were found to have allopatric geographic distribution on the same host species, *Passer domesticus*, i.e. "sympatric" host occurrence. The same was observed with *Pterophagus strictus* Mégnin and *P. columbae* (Sugimoto) on *Columba livia domestica*. Cases of allopatric occurrence of congeneric species of Mallophaga on one host species were reported by Clay (1976) e.g. for *Strigiphilus aitkeni* Clay and *S. rostratus* (Burm.) on *Tyto alba*, for *Pectinopygus garbei* Pessôa et Guimarães and *P. sulae* (Rudow) on *Sula sula* and *S. leucogaster* or for *Myrsidea arafura* Klockenh. and *M. schizotergum* Klockenh. on *Corvus orru*. These examples confirm clearly the unsuitability of using the terms sympatry and allopatry in relation to host-parasite relationships for non-geographic purposes.

Already Wenzel et al. (1966) proposed to designate species of the same genus, occurring together on the same host species, as synoxenous, and those occurring on different hosts in the same or different geographic areas as alloxenous. Therefore, alloxenous species may be either sympatric or allopatric.

But the above mentioned curious cases of *Proctophyllodes* distribution do not fit under this definition. The mites were found on the same host species but not together. From the original definition it is not quite clear if "together" means on the same specimen or in the same geographic territory. Nelson (1972) interprets synoxenia only as the presence of more than one species of the same genus on one

host species. Therefore, three different types of parasite-host species relationships must be distinguished: 1) occurrence of parasites on the same host individual; 2) sympatric occurrence on the same host species and 3) allopatric occurrence on the same host species.

It is proposed to call simultaneous occurrence of various parasites on a single host individual idioxenia (or idioxeny) analogically as Kisielewska (1970) called a monospecific assemblage in a single host individual idiohost population, and that of congeneric parasites euidioxenia. Vice versa the occurrence of parasites on the same host species could be termed hospitoxenia.

The original term synoxenia could be reserved for sympatric occurrence of congeneric parasites on the same host species. The term pseudosynoxenia might represent the allopatric occurrence of congeneric parasites on the same host species.

The phenomen of euidioxenia is not quite common in ectoparasites and is connected with topic specialisation for various ecological niches in body teguments, fur or feathers. It may be observed in various feather mites (Analgoidea) among which the cases of simultaneous parasitization by *Freyana anatina* (Koch) and *F. largifolia* Mégn. et Trt. in various Anatidae are best known (Dubinin 1953). Another case of euidioxenia is the infestation of the South American erethizontid rodent *Coendou villosus* by *Eutrichophilus cordiceps* Mjöberg, *E. minor* Mjöberg and *E. cercolabes* Mjöberg (Bovicolidae) (Werneck 1936). It is quite obvious that the phenomena of euidioxenia and synoxenia are linked by various interstages.

An excellent example of synoxenia (with a part of euidioxenia certainly involved) is reported by Dubinina (1964) who found 12 species of the genus *Histiophorus* Friedrich (= *Schizocarpus* Trouessart) (Chirodiscidae) on the beaver *(Castor fiber)* localized in different body regions in relation with fur texture variations.

An extremely interesting and unique case of speciation on the same host is described by Fain and Domrow (1974). Collections from the potoroo, *Potorous tridactylus*, a macropodid marsupial distributed in south-east Australia and Tasmania yielded alltogether 21 morphologically separable species of the genus *Cytostethum* Domrow (Atopomelidae) with both sympatric and allopatric occurrence. The number of species collected from the host in individual localities varied between 3—12.

Similar cases of synoxenia are known in North American muskrats, *Ondatra zibethica*, harbouring 6 species of the genus *Listrophorus* Pagenstecher (Listrophoridae) (Fain and Hyland 1974).

The study of these phenomena, and therefore their correct denomination, is important for our knowledge of parasite-host relationship, geographic distribution and speciation mechanisms in parasites.

ИДИОКСЕНИЯ В ПРОТИВОПОЛОЖНОСТЬ СИНОКСЕНИИ У ЭКТОПАРАЗИТОВ

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Резюме. Обсуждаются разные формы отношений между паразитами и видом хозяина и для некоторых из них предлагаются новые названия.

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N. A. Filippova: Iksodovye kleshchi podsem. Ixodinae (Ixodid ticks of the subfamily Ixodinae). *Fauna SSSR, vol. IV, No. 4, Publ. House Nauka, Leningrad 1977, 396 pp., 221 Figs., 106 Tables. Price 4.32 R.*

Due to their medical importance, studies on ticks in the Soviet Union have a long tradition lasting several decades. Scores of papers dealing with this group of parasitic arthropods from most different aspects are published annually. A single species, *Ixodes persulcatus*, has been dealt with in over 2,000 papers because of its epidemiologic importance. A far less attention has been paid to the problems of tick taxonomy, although the correct identification of material is the first pre-requisite for its further investigation and evaluation. Likewise, it is impossible to characterize the tick fauna of a certain natural focus, if its representatives in all phases of development are not discerned. The classical monograph of Pomerantsev (1950) could not fully satisfy the present needs of Soviet acarology any longer. The task of compiling anew and on an up-to-date level this group of parasitic arthropods for the series Fauna of the USSR was undertaken by N. A. Filippova, the outstanding specialist in the taxonomy of Ixodoidea, whose work of many years' standing in this scientific field is world known and appreciated. Due to large material the said volume covers only members of the subfamily Ixodinae, represented by the genus *Ixodes*.

The author first deals with the external structure of ticks. According to the uniform scheme she discusses the character of idiosoma, gnathosoma and legs separately for females, males, nymphs and larvae, paying attention not