

Fig. 1

Thin-Layer Chromatogram of the Free Ninhydrin-Positive Compounds Present in Araneus diadematus (Sample 1)

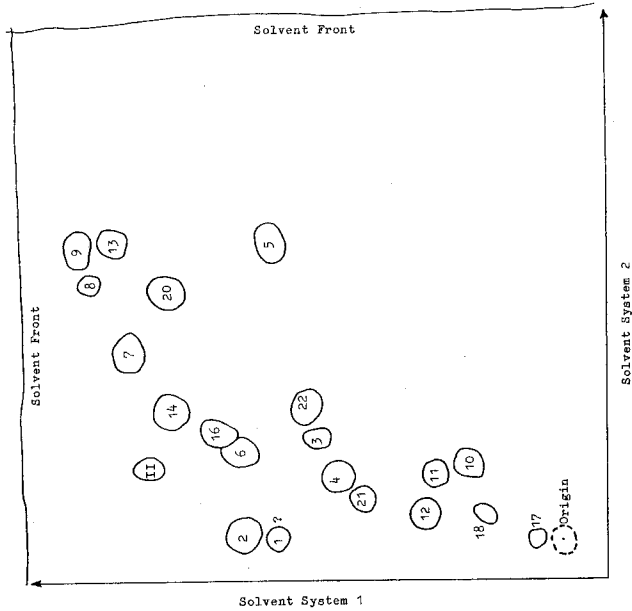


Fig. 2

Thin-Layer Chromatogram of the Free Ninhydrin-Positive Compounds Present in Lycosa amentata (Sample 2)

- ✓ = This indicates the presence of phosphate.
- + = < 2.0 umols amino acid per g. of original material.
- ++ = 2.0-10.0 umols amino acid per g. of original material.
- +++ = > 10.0 umols amino acid per g. of original material.

N.B. These concentrations were found by direct visual observation of the intensity and size of the amino acid spot, compared with standards run under the same conditions. They are intended to give an indication of relative concentrations and not an accurate assay.

- = None detected.

Solvent system 1: 2-Propanol - Butanone - InHydrochloric acid
(60 : 15 : 25 v/v)

Solvent system 2: 2 Methyl propanol - 2 - Butanone - Propanone - Methanol
- Water - (0.88) Ammonia.
(40 : 20 : 20 : 1 : 14 : 5 v/v)

A NOTE ON THE LONGEVITY AND MOLT CYCLE OF TWO TROPICAL THERAPHOSIDS

by W.J.BAERG and W.B.PECK.

It has been commonly accepted that a long life span is generally typical in spiders of the "primitive" taxa (Bristowe, 1958; Savory, 1966). Actual records confirming the upper limits of old age, however, are relatively rare. It is thence perhaps noteworthy to add the records of two tropical theraphosids which were kept in captivity as adults for longer than ten years.

Phormictopus cancerides (Latreille)

Of four specimens of Phormictopus cancerides that Prof. R.B. Cross brought to the senior author from Port au Prince, Haiti, in August 1959, the single male and one female died within a month. A second female lived for 15 months in captivity, and the third lived 11 years and four months, dying in December 1969. At the time that these spiders were received, it was recorded that this latter female, though small, appeared to be mature. Because mygalomorphs lack an epigynal plate and because other morphological manifestations of maturity in most of them are not known, it is not possible to determine with any degree of certainty whether or not a living female is sexually mature. Nothing is known of the life history of P.cancerides, but assuming that its period of development at least approximates that of Dugesiella hentzi (Girard) (Baerg, 1958 & 1963), and that it was mature, it was estimated that this female was 11 to 13 years old when captured. Granting the accuracy of this estimate, this spider was probably 22 to 24 years old at the time of its death.

Whereas captive tarantulas of several genera have frequently been known to become very docile and accept human handling with no evident distress, this specimen retained a defensive, almost aggressive, demeanor throughout its long captivity. Until shortly before dying, when it

ceased to eat altogether, it would attack anything introduced into its cage with speedy vigor. It consumed a wide variety of arthropods regularly and voraciously. The spider measured 3 7/16 inches from the front of the chelicerae to the spinnerets, and its readily provoked attacks were somewhat awesome.

Between June 1961 and June 1967, this specimen molted regularly each year on a remarkably fixed schedule. Five of the seven molts during this period occurred in the last two weeks of June, and the remaining two molts did not vary from that schedule by more than two weeks. The last two molts prior to death varied widely from the previous regularity. One occurred in September 1968 and the other in February 1969. A general disruption of life processes due to senility may explain the irregularity of the final molts.

Aphonopelma smithi (F.O.P.-Cambridge)

An adult female Aphonopelma smithi received by the senior author as a gift from Prof. F.X. Williams in September 1958, had been in the latter's care already for about one and a half years. The locale of its collection was not recorded more specifically than "southern Mexico". (One of the authors (W.B.P.) has also seen a male believed to be of this species collected by Dr. Thomas Moore near Alajuela, Costa Rica.) Again deducing from the known life history of Dugesia hantzzi, it was estimated that at the time of its capture this spider was at least 12 or 13 years old. It lived in captivity for approximately 13 1/2 years and was probably 26 years old when it died.

This spider was exceptionally gentle. No amount of manipulation or handling ever seemed to upset its "composure". It became the pet and pride of a long succession of graduate students at both the University of Arkansas and Central Missouri State College, and made numbers of excursions to lecture halls of other institutions as an example of spider amenability and venerability. Her size, approaching four inches in length, was as impressive as her good nature.

This specimen of A. smithi molted in 1957 (date not recorded), on June 18, 1959, and on June 19, 1961, giving evidence of a two-year molt cycle. Then, after this circumstance had been reported (Baerg, 1963), she molted again the following year in August 1962, and thereafter returned to a very regular two-year cycle, molting every other June, i.e., in 1962, 1964, and 1966. There was no molt at the expected time in 1968, and the spider died in June 1969. Again, as in Phormictopus, an erratic molt schedule toward the end of life may be indicative of stresses resulting from senility. No readily evident explanation could ever be found for the single instance of an annual molt by this spider in the 13 1/2 years during which it was otherwise observed to molt only in alternative years.

References:

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PRELIMINARY OBSERVATIONS ON THE FOOD OF THE SPIDER

THERIDION PICTUM (Walck.) AND ITS PREDATORS

by JADWIGA ŁUCZAK and ELIZA DĄBROWSKA-PROT.

In addition to experimental investigations into the regularity of spider predation on mosquitoes, observations have been made of the natural process in the field (Dabrowska-Prot, Luczak, 1968; Luczak, Dabrowska-Prot, 1968).

These researches were made on the species Tetragnatha montana Simon and food collected from the spiders' webs in an alder wood of the Kampinos Forest National Park, Poland, where mosquitoes were abundant, was analysed. The investigation showed that mosquitoes constituted a considerable per cent of the food of Tetragnatha montana.

Within this research, during the second fortnight of July 1969, 103 webs of the spider Theridion pictum (Walck.) were examined in the same habitat of alder wood, where T. pictum occurred in aggregations of about 5-6 webs over an area of 4 m². The average density of these spiders on the investigated area covering about 0.5 hectare of this forest, was 2 webs per 4 m². Webs were found low down on different plant species of the herb layer, usually 20-50 cm above the surface of the forest floor and most frequently on the tufts of Carex paniculata. The webs of this spider are adapted to catch winged prey, and this type of prey should be its basic food (Wiehle, 1937; Locket and Millidge, 1953).

In addition to T. montana and T. pictum, other species of web-spiders were frequently found, among them Achaearanea tepidariorum simulans Thor. (also frequent on Carex paniculata) and Theridion ovatum Clerck. Observations were carried out in the period following cocoon making by T. pictum females. Usually the females had one cocoon in the nest, but four females were found which had two cocoons. Young spiderlings developed from about 40% of cocoons. The males were not found.

Altogether, 202 prey were collected from the webs of T. pictum. The main food of this spider in the investigated habitat consisted of insects from the Diptera group (52% of the whole food) and Coleoptera (14% of the whole food) as shown in Table I. Within these two major prey groups, fine forms not exceeding 0.5 cm (73%) prevailed. Mosquitoes (Culicidae) formed 16% of the whole food, and 30% of all Dipterous prey. Also, the share of ants among the prey caught in webs was considerable and reached 6%. Other prey, besides the groups already mentioned, constituted altogether 8% of the whole food of T. pictum. Our results confirm the observations of other arachnologists about the frequent occurrence of various species of Coleoptera in the food of spider species of the genus Theridion. T. pictum is to a large extent a predator of this group of insects.

Mosquitoes, apart from Coleoptera and other Diptera, were the basic food of this spider species. Thus, the obtained material allows us to assume that T. pictum is an effective predator of mosquitoes. Also it should be taken into consideration that 1969 was an especially poor year for the mosquito fauna in the Kampinos Forest. Observations carried out