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PARASITIC PROFILE OF FIVE SPECIES OF TERRESTRIAL Achatina SNAIL IN CROSS RIVER STATE, NIGERIA: PUBLIC HEALTH IMPLICATIONS

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presented @ British Society for Parasitology Spring Meeting 2024 held on; 2nd – 5th April, Liverpool.

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The BSP WAS FORMED IN 1962

Background of Study

- Giant African land snails belonging to the gastropod family Achatinidae, are natives of Africa and represents about 200 species in 13 genera
- They can be found throughout Sub-Saharan Africa. Snails could be grouped based on their habitats into two groups- terrestrial and aquatic snails. Snails live in habitats that are often moist and Achatina species are usually restricted to humid forest areas where they exist in large numbers.
- The Giant African land snail is an intermediate host for several parasites including *Angiostrongylus cantonensis*, *Schistosoma mansoni*, *Hymenolepis spp.* and *Fasciola hepatica* which cause severe diseases in humans.
- Parasitic infections of Achatina species are enormous and cannot be overemphasized. Therefore, this study investigates the helminth parasite status of some edible land snails in the Central Senatorial District of Cross River State.

Discussion

A total of 760 Achatina snail species were collected in this study. The species of Achatina recovered in this study (*A. achatina*, *A. fulica*, *A. marginata*, *A. belteata* and *A. degneri*) have been reported in other studies conducted in Nigeria.

A. achatina was the most abundant species while *A. degneri* was the least abundant. This finding agrees with reports by Elom and Opara-Elom (2021).

The highest number of parasitic helminths was recovered from *A. fulica* and this observation is in agreement with previous reports that some snail species are more susceptible to certain parasites than others (Igbinosa et al., 2016). Elom and Okpara-Elom (2021) also reported *A. fulica* to be more infected by parasites than other snail species examined.

A. lumbricoides infected all the snail intermediate hosts in both seasons, with less prevalence in the dry season. The versatility in infectivity of *A. lumbricoides* with respect to seasons and hosts as observed in this study has been reported and attributed to the resilience of its ova which has been observed to withstand extreme environmental conditions

In this study, the intensity of *A. cantonensis* was highest in *A. fulica* at an intensity of 4.079 and it has been reported that *A. fulica* is the major snail host of *Angiostrongylus* species all over the world and that observation has been attributed to its ubiquity and high level of susceptibility to the parasite.

CONCLUSION

- The results of this study indicate the prevalence of different parasitic species of public health importance. Infection of the snails which are endemic in the study area with the recovered parasites, majority of which are zoonotic could be attributed to poor environmental sanitation and open defecation.
- Therefore, health education, provision of adequate toilet systems and creation of public health awareness are required for sustainable control and interfering with the transmission of the parasites.

Reference;

Mbah, J. O., Osondu-Anyanwu Chinyere., & Imalele, E. E. (2022). Parasitic profile of five species of terrestrial Achatina snail in cross river state, Nigeria: Public Health Implications. *Uttar Pradesh Journal of Zoology*, 43(1), 13-21.

Acknowledgement: The authors wish to thank the technical staff of the Department of Science Laboratory Technology, Faculty of Biological Sciences, University of Calabar, for their assistance during the field survey.

Methodology

- **Study Area:** The study was carried out in six communities in the Central Senatorial District, Cross River State, Nigeria. These communities are located in six Local Government Areas (LGAs), namely, Abi, Boki, Etung, Obubra, Ikom, and Yakurr. One community was selected from each of the six LGAs
- **Sample Collection:** This study was conducted between January and August 2021. Seven hundred and sixty (760) samples of snails were randomly collected from different quarters of the six communities selected in the Central Senatorial District of Cross River State, Nigeria
- **Identification:** Snails were identified according to their shape, size, markings, color, spire angle, sculpture and aperture form.
- **Data Analysis:** Data obtained were analyzed using Statistical Package for Social Sciences (SPSS) version 20 and Microsoft Office Excel 2007.

Results

Table 1. Species-Specific distribution of monthly collected snail species in selected communities in the Central Senatorial District, Cross River State

Month	<i>A. achatina</i>	<i>A. fulica</i>	<i>A. marginata</i>	<i>A. belteata</i>	<i>A. degneri</i>	Total	D (pi)	(p ²)	H (pi ln pi)
January	20	10	5	12	8	55	0.0724	0.0052	-0.1901
February	23	18	9	11	10	71	0.0934	0.0087	-0.2214
March	12	10	16	10	9	57	0.0750	0.0056	-0.1943
April	15	24	12	8	10	69	0.0908	0.0082	-0.2179
May	21	33	13	10	8	85	0.1118	0.0125	-0.2450
June	50	35	20	32	10	147	0.1934	0.0374	-0.3178
July	49	40	15	22	12	138	0.1816	0.0330	-0.3098
August	60	30	10	20	18	138	0.1816	0.0330	-0.3098
Total	250	200	100	125	85	760	1.0000	0.1436	2.0061

Table 2. Prevalence of helminth parasite in snail species

Samples	No. Examined	No. Infected	% Infection	χ ²	P value
<i>A. Achatina</i>	250	107	42.80%	7.639	.18
<i>A. fulica</i>	200	101	50.50%		
<i>A. marginata</i>	100	28	28.00%		
<i>A. belteata</i>	125	53	42.40%		
<i>A. degneri</i>	85	30	35.29%		
Total	760	319	41.97%		

Table 3. Prevalence of infection in snails collected according to location

Location	No Examined	Total No Infected (%)	<i>S. Stercoralis</i>	<i>A. Cantonensis</i>	<i>F. Gigantica</i>	<i>D. Dendriticum</i>	<i>S. Mansoni</i>	<i>A. lumbricoides</i>
Abi	105	40 (38.10%)	40 (100%)	7 (17.50)	2 (5.00)	5 (12.50)	2 (5.00)	---
Boki	160	90 (56.25%)	90 (100%)	12 (13.33)	5 (5.56)	10 (11.11)	4 (4.44)	---
Etung	120	44 (36.67%)	44 (100%)	3 (6.82)	6 (13.64)	---	6 (13.64)	---
Ikom	215	46.99%	100 (100%)	15 (15.00)	---	---	5 (5.00)	2 (2.00)
Obubra	94	20 (21.28%)	20 (100%)	---	---	---	---	3 (15.00)
Yakurr	66	25 (37.99%)	25 (100%)	3 (12.00)	---	7 (28.00)	---	5 (20.00)
Total	760	319 (41.97)	319 (41.97)	40 (5.26)	13 (1.71)	22 (2.89)	17 (2.24)	10 (1.32)

