OCCURRENCE AND DISTRIBUTION OF FRESHWATER SNAILS IN THREE COMMUNITIES IN EKITI STATE

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(Received on Date: 3rd August 2017 Date of Acceptance: 1st November 2017)

ABSTRACT

Schistosomiasis continues to be one of the most important and widespread neglected tropical disease that occurs in Nigeria. The distribution of the disease is determined by the presence of freshwater snail species which serve as intermediate hosts for the disease. Freshwater snails had been known to occur in streams in Ekiti State, Nigeria. This work was initiated with the objective to examine the distribution of freshwater snails in streams at three different communities in Ekiti State. Freshwater snails were collected at different points of the streams found in the three communities. Method of collection of the freshwater snails includes the use of scoop net and manual picking. Results showed that various species of freshwater snails including Potadomamoerchi, Lanisteslibycus, Bulinus globosus were found in all the three communities and Bellamyia unicolar were only found in one of the three communities. Among the three freshwater snails found in all the communities Potadomamoerchi were the most abundant (45.8%), followed by Lanistes libycus (30.8%) and the least were the Bulinus globosus (18.0%). Bellamyia unicolar (5.4%) were found only in one of the three communities. Some of the species of these freshwater snails had been reported to serve as intermediate hosts for Schistosoma indicating that these communities could be prone to schistosomiasis.

Keywords: Schistosomiasis, Schistosoma, freshwater snails, Ekiti State, occurrence, distribution

No: of Tables: 1 No: of References: 19
INTRODUCTION

Snails have a wide range of importance to humans both economically and medically. A sizeable number, especially the aquatic forms of freshwater snails in tropical freshwater are known to be inevitable agents of trematode diseases of man and his domestic animals (Cowper, 1959; Brown, 1994). Schistosoma species that causes schistosomiasis uses several species of freshwater snails as intermediate hosts. In Nigeria, schistosomiasis is a disease of considerable and growing importance due to inadequate portable water and activities related to water resource development schemes for irrigation, fishing, and hydro-electricity (Ofoezie, 2002). Human infection with Schistosoma haematobium has been reported in several areas in Nigeria (Adewole et al., 2001; Olofintoye, 2004; Ugboroiko, 2004; Owojori et al., 2006). In Ekiti state, the status of urinary schitosomiasis has been well documented including studies on prevalence, pathology and epidemiology (Ologunde, 2009). Identifying the species and distribution of freshwater snails is important in identifying areas that may prone to the occurrence of schistosomiasis. This work was therefore initiated with the objectives to find out the occurrence and distribution of freshwater snails in some streams in three communities in Ekiti State. The communities are Ifaki-Ekiti, Iworoko-Ekiti and Are-Ekiti.

Materials and method

Study areas: The study areas are Ifaki-Ekiti, Iworoko-Ekiti and Are-Ekiti which located at the centre of Ekiti State. Ekiti State is situated in the southwestern part of Nigeria. The State enjoys tropical climate with two distinct seasons, rainy season (April to October) dry season (November to March). The annual rainfall is about 1150mm. The study was carried out in three streams at Ifaki-Ekiti. The names of the streams are Omi Pupa, Arototo and Owase. Three streams were also investigated at Iworoko-Ekiti and the names are Asipa, Omi Afeni, and Omosuo. But only one stream was investigated at Are-Ekiti and the stream is called Are-Afao stream. Each of the streams was divided into different stations. Each station was randomly sampled for snails using a long-handled scoop-net. Snail sampling was carried out for each of the designated spots in each of the streams. From each spot six passes of the scoop were taken across each semi-circular curve and dragging along on-shore direction. Freshwater snails that were found attached to the marginal edges and soil surface were handpicked. Snails that were found were transported to the laboratory in pre-labelled plastic containers containing damp and decaying leaves, covered with perforated lids. The snails were sorted and identified to species.

Results

The number and species of freshwater snails found in the different streams in the three communities are shown in Tables 1. In all the seven streams examined; eight hundred and forty (840) freshwater snails were collected. The species of freshwater snails collected were Potadomamoerchi
385 (45.8%), *Lanistes* libycus 259 (30.8%) and *Bulinus* globosus 151 (18.0%) in all the streams from the three communities. *Bellamyia unicolor* 45 (5.4%) were found only in Are-Afao stream.

**Table 1.** Freshwater snails collected from seven streams in the three communities in Ekiti State, Nigeria.

<table>
<thead>
<tr>
<th>Community</th>
<th>Name of the Stream</th>
<th>Potadoma moerchi</th>
<th><em>Lanistes</em> libycus</th>
<th><em>Bulinus</em> globosus</th>
<th><em>Bellamyia unicolor</em></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ifaki-Ekiti</td>
<td>Omi Pupa</td>
<td>55</td>
<td>45</td>
<td>20</td>
<td>-</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Arototo</td>
<td>44</td>
<td>40</td>
<td>14</td>
<td>-</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>Owase</td>
<td>49</td>
<td>35</td>
<td>18</td>
<td>-</td>
<td>102</td>
</tr>
<tr>
<td>Iworoko-Ekiti</td>
<td>Asipa</td>
<td>74</td>
<td>33</td>
<td>17</td>
<td>-</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>Omi Afeni</td>
<td>65</td>
<td>58</td>
<td>15</td>
<td>-</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Omosuo</td>
<td>48</td>
<td>13</td>
<td>27</td>
<td>-</td>
<td>88</td>
</tr>
<tr>
<td>Are-Ekiti</td>
<td>Are-Afao</td>
<td>50</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>170</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>385 (45.8%)</td>
<td>259 (30.8%)</td>
<td>151 (18.0%)</td>
<td>45 (5.4%)</td>
<td>840 (100%)</td>
</tr>
</tbody>
</table>

**DISCUSSION**

This study has identified a total of three freshwater snail species namely *P. moerchi*, *Lanites libycus* and *B. globosus* in all the six streams investigated at Ifaki-Ekiti and Iworoko-Ekiti (Table 1) and a total of four snail species namely *P. moerchi, Lanites libycus, B. globosus* and *Bellamyia unicolor* at Are Afao stream. These freshwater snails coexisted together in these habitats. Barclay (1958) indicated that stable coexistence of freshwater snails in habitats is capable of supporting mutually exclusive and conducive niches for different species population. *Bulinus globosus* being present in the water bodies was of epidemiological significance considering the intense water contact activities at the various points. *Bulinus globosus* are known intermediate hosts of *Schistosoma haematobium* in Nigeria (Adewunmi et al., 1990). The abundance of *Bulinus globosus* in all the streams could be expected. Olofintoye, (2001); Odaibo et al. (2004); Olofintoye (2005) reported the presence of *Bulinus globosus* in different freshwater habitats in Ekiti State. *P. moerchi* and *L. libycus* are not natural vectors of human schistosome species. However, *P. moerchi* had been reported to harbor schistosomesporocysts (Agbolade and
In their study, Agbolade and Agu (2013) observed schistosomes porocysts in one of the *P. moerchi* that were examined and the sporocysts eventually produced cercariae. Cercariae from *P. moerchi*, was believed to cause swimmers itches in humans not only during snail collection but also during consumption if the freshwater snails are not properly cooked (Agbolade and Agu, 2013). *L. libycus* are known to be edible (Omudu and Achagh, 2005), but trematode cercariae had been recorded to associate with the them (Agbolade et al., 2005). Trematode cercariae had been reported to elicit cercarial itching in humans who collect both *L. Libycus* and *P. moerchitof* consumption (Agbolade and Odaibo, 2004; Agbolade et al., 2004). Potadoma species have long been incriminated as vector of schistosoma and *Paragonimus* in tropical Africa (Ukoli, 1984). Freshwater snails have become very important alternative source of animal protein as the prize of the more traditional animal protein sources have risen above the reach of many inhabitants. These freshwater snails which are edible and medically important call for urgent awareness on the public health implications. The distribution and abundance of freshwater snails in the streams could be attributed to the availability of food, shelter and oviposition sites. *Bellamyia unicolor* are not known to serve as intermediate hosts for any parasites of medical importance.

**REFERENCES**


