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Research Paper

Ectoparasite Fauna of Pigs from Zuru, Kebbi State, Nigeria

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Collection of ectoparasites within Piggeries in Zuru town, Kebbi State was undertaken for a period of one year. Ectoparasites thus collected were identified using a stereo microscope. From a total of 115 pigs, 109 (94.7%) were infested with diverse species of ectoparasites that included Hematopinus suis (44.3%), Sarcoptes *scabiei* var suis (10.4%), *Ornithodorus moubata* (8.7%) *Amblyomma variegatum* (2.6%), *Hyalomma dromedarii* (10.4%) and *Musca domestica* (18.3%). The study showed a high prevalence of ectoparasites on pigs which constituted considerable health and production problems. There was a significant difference ($p< 0.05$) with respect to the age of the host. It is thus imperative to adopt integrated vector control strategies to improve swine production as such studies have not been hitherto carried out in the study area.

Keywords: Ectoparasite, pigs, Zuru

INTRODUCTION

Pigs are among the oldest monogastric animals with omnivorous characteristics consuming vegetable materials, root tubers, cereals, legumes, oil seeds and flesh of other animals (Odo *et al.*, 2016).They provide valuable animal proteins for human consumption as well as jobs for over one million families engaged in livestock trade and production. They also provide farmyard manure (Ademola and Onyiche, 2013). Swine production in Nigeria is limited by, amongst other things, the deleterious effects of ectoparasites. Ectoparasites infesting swine generally belong to the taxonomic orders Diptera (flies), Siphonapthera (fleas), Pthiraptera (lice) and Acarina (Mites and ticks).Besides their manifested abilities as vectors of a wide range of rickettsial,protozoan,bacterial and viral agents in man, companion and domestic animals, they also inflict notable dermatitis and predispose their hosts to other arthropod-borne infestations such as myiasis. Furthermore, the lesions they produce may serve as portals of entry for various microbial agents. Ectoparasites are common in all agroecological zones of the country (Mohammed, 1977) necessitating collection of relevant information and data on their distribution for the purpose of developing effective ectoparasite control strategies (Tanasak *et al.*, 2009).This will also serve as a means of understanding the host/parasite relationship and variation of ectoparasite population in different agro ecological zones. Annual losses due to control of ectoparasites in the United States have been estimated at about $100 million, of this sum, $40milion has been attributed to the hog louse, *Hematopinus suis*, $30 million to mites, primarily *Sarcoptes scaibiei* and $30million to flies and other

arthropod pests of swine. Most of the studies conducted on ectoparasites of domestic animals have been largely on cattle (Lawal *et al*., 2017); goats (Beyecha *et al*., 2014) and dogs (Adriana *et al*., 2012).The paucity of information on swine ectoparasites in the study area prompted this study. Therefore, this study was undertaken to elucidate the ectoparasite species of pigs which will serve as a pre-requisite to a rational design of effective vector control programme.

MATERIALS AND METHODS

Study location

The study was carried out in Zuru Local Government Area of Kebbi State Nigeria; its headquarters is in zuru town. The emirate comprises four local government areas, namely; Danko-wasagu, Fakai, Sakaba and Zuru. Zuru is situated at 11.42° North latitude, 5.23°East Longitude and 447 meters elevation above the sea level, (KSG, 2003). The main occupations of the community are farming and animal husbandry.

Collection of ectoparasites

Ectoparasites such as ticks were collected from the host by the use of blunt forceps and hand picking while lice were collected by the use of camel hair brush, mites were collected by deep skin scrapings. Biting flies were collected by the use of swoop nets. Ectoparasites thus collected were preserved in 70% ethanol into which 5% glycerin was added and were identified by the use of a stereomicroscope (×20 magnification) identification of ectoparasites to species level were made using the illustrations and descriptions as provided by Wall and Shearer, (2001). Analysis of variance was used to test for significance between ages. Differences were considered significant at a probability of $p<0.05$.

RESULTS

Out of the total of 115 pigs sampled, 109 were infested which contributes 94.7% (Table 1). Among the positive samples, 61(56.0%) were from adult pigs while 48 (44.0%) were from young pigs (Table 2). Six (6) species of ectoparasites were identified from 109 pigs. Ectoparasites identified in order of predominance included *Hematopinus suis* (47%), followed by Musca domestica (19%), *Sarcoptes scaibei var suis* (11%), Ornithodorous moubata (9%),Hyalomma dromadarii (8%) and Amblyomma variegatum (3%).

There was significant difference ($p<0.05$) between age of pigs and infestation with adults being more infested than young ones.

DISCUSSION

The result of this study constitutes the first major report on ectoparasite fauna of pigs from Zuru, Kebbi State. An overall picture of swine ectoparasites revealed that a variety of ectoparasite species infest pigs in the study area which can be attributed to lack of ectoparasite control programme and free-range management system (Kambarage *et al*., 1990; Permin *et al*., 1999; Nsoso *et al*., 2000).

This corroborated with the reports of Damriyasa *et al*., (2004) who reported high infestation rate of ectoparasites on swine from Hesse, Germany. The identification of *H.suis and O.moubata* is worthy of note, as they can cause unthriftiness, pruritus, reduced performance, increased susceptibility to other diseases, transmission of swine pox, eperythrozoonosis and African swine fever (Permin *et al*.,1999). A. *variegatum* and H. *dromedarii* are three host ticks which imply that they attach and imbibe blood from other species of domestic animals and humans alike (Nwosu *et al*., 2003 and James-Rugu and Jidayi, 2004). This behavior enhances the role of ticks as vectors of many pathogenic organisms of man and livestock. Accordingly, these findings call for greater recognition and interest in ectoparasite fauna of swine because of great economic impact on swine production as well as their significance on swine as intermediate hosts of human and livestock parasites.

Adults were more infested than young ones. This may be attributed to the fact that adult pigs acquire and disseminate various species of ectoparasites during mating. Also, adult pigs are allowed on extensive system of management which makes them vulnerable to attack by ectoparasites (Alonso *et al*., 2007). *Sarcoptes scaibei var suis* was the only mite identified in this study which lends credence to the report made by Nsoso *et al*.,(2000) who identified S.*scabiei var suis* as the only mite species infesting pigs from Spain. Also, the prevalence of *Sarcoptes scabiei var suis* as reported in our study was lower than that reported in other studies in Ghana (38.3%), (Permin *et al*., 1999) Botswana (40%) (Nsoso *et al*., 2000) and Tanzania (52%) (Kambarage *et al*., 1990) this might be attributed to differences in temperature and humidity of the different locations which greatly affects arthropod fecundity and growth.

It is therefore opined that the occurrence and prevalence of swine ectoparasites in the study area pose a potential health hazard and are also of significance due to their capacity to cause and transmit diseases which are of zoonotic importance. The high prevalence of ectoparasites on pig's calls for the need to develop and institute effective control and preventive measures against these ectoparasites owing to the fact that pig production is increasing in the study area. Also, further studies ought to be carried out on the hemolymph smears of these arthropods in order to determine their vectoral capacity and status.

Table 1. Prevalence of Ectoparasites of swine from Zuru.

Ectoparasite	Percentage Prevalence (%)	No of pigs Infested
Louse		
Hematopinus suis	43.3	51
Mite		
Sarcoptes scaibei var suis	10.4	12
Ticks		
Ornithodorus moubata	8.7	10
Amblyomma variegatum	2.6	3
Hyalomma dromedarii	10.4	12
Flies		
Musca domestica	18.3	21

Table 2. Prevalence of Ectoparasites on pigs with respect to age.

Age	No Positive	Percentage prevalence (%)
Adult	61	56
Young	48	44
TOTAL	109	100

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