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ECTOPARASITES OF DOMESTIC PIGEONS (*Columba livia domestica*) IN DIYARBAKIR PROVINCE IN TÜRKIYE

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Abstract. Ectoparasitic diseases have been observed in studies that have negative effects, especially on the development of pigeons. This study was conducted to determine the ectoparasite species found in domestic pigeons (*Columba livia domestica*) in Diyarbakır city center. A total of 125 pigeons in Diyarbakır and its center were studied in terms of ectoparasites. It was determined that 66 (52.8%) of 125 pigeons examined during the study process in Diyarbakır were infested with various ectoparasite species at varying degrees. *Columbicola columbae* was found in 48% of the pigeons and Goniocotes bidentatus in 4.8%. One species was found in 60 (91%) of the infested pigeons and two species (*C. Columbae* + *G.bidentatus*) were found together in 6 (9%) of the infested pigeons.

Keywords: *Ectoparasite, pigeon, Columbicola columbae, Goniocotes bidentatus.*

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1. Introduction

Pigeons, which in ancient times were attributed with the meanings of various sacred beings such as goddess, holy spirit and fairy, have been fed and loved in almost every region of the world. These birds, which are mostly kept for hobby purposes, are also raised as laboratory animals in some research centers or as a food source in some settlements. Nowadays, the widespread use of pigeon breeding has brought about an increase in diseases observed in birds (Yıldırımhan *et al*., 2009).

Ectoparasites seen in pigeons cause lesions on the skin and feathers, causing poor condition and they also play a role in the transfer of some bacteria and viruses to other birds (Mushi *et al*., 2000; Dovc *et al*., 2004). It is known that many parasites found in pigeons affect the development and performance of pigeons and have been reported to result in death in later cases (Yıldırımhan *et al*., 2009; Dovc *et al*., 2004; Cooper, 1984).

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Despite the increase in the number of parasitic studies on domestic poultry in our country and in the world, the number of studies on ectoparasites of pigeons, which are in close relationship with domestic poultry, is quite limited (Tiğin, 1973; Gıcık, 1999; Köroğlu & Şimşek, 2001; Gülamber *et al*., 2002). The main reasons for this are that pigeons are not of economic importance, they are difficult to catch and they are not thought to be an important source of infection for other economically important birds (Tiğin, 1973).

This study aimed to determine the prevalence of ectoparasites in domestic pigeons (Columba livia domestica) raised for hobby in Diyarbakır province.

2. Material and Method

This research was conducted in Diyarbakır Center between April 2018 and July 2019. 125 pigeons were examined for ectoparasites. The parasites were duly collected from the pigeons, which were found to be infested as a result of the examination and were placed in bottles containing 70% ethyl alcohol, labeled with protocol information and brought to the laboratory. The collected parasites were kept in the clearing solution for 8 days, then kept in xylol for 20 minutes and mounted on the slide with Canadian balsam. The preparations were labeled and protocol information was written on them. After the preparation process, the species of the lice examined under the microscope were determined according to their morphological characteristics in the light of relevant literature (Dik, 2010; Soulsby, 1986; Dale *et al*., 1999; Saikia *et al*., 2017). Statistically, differences in age and gender ratios were evaluated using the Chi-square test.

3. Result

It was determined that 66 (52.8%) of the 125 pigeons examined during the study in Diyarbakır province were infested with various ectoparasite species to varying degrees. *Columbicola columbae* was detected in 48% of the pigeons and *Goniocotes bidentatus* in 4.8% (Table 1). A single species was found in 60 (91%) of the infested pigeons and two species (*C. Columbae* + *G. bidentatus*) were found together in 6 (9%).

Table 1. Ectoparasite species and infestation rates found in pigeons

Ectoparasite species	Infestation rates (%)
Columbicola columbae	48
Goniocotes bidentatus	4,8

Table 2. Infestation rates of pigeons according to age and gender

	Age		Gender	
	Young	Adult	Male	Female
Number of examined pigeons	39	86	77	48
Number of Infested Pigeons	20	46	42	24
Infestation rates	51,2%	53,4%	54,5%	50%

While the infestation rate was found to be 51.2% in young people and 53.4% in adults, it was found to be 50% in females and 54.5% in males, but no statistical difference was detected ($p>0.05$) (Table 2).

4. Discussion

Many ectoparasite species and different distribution rates have been reported in studies conducted on pigeons in different countries around the world (Abdul-Karim *et al*., 1988; Dranzoa *et al*., 1999; Gothe & Imhoff, 1975; Toro *et al*., 1999). In studies conducted to determine the ectoparasite species found in pigeons in different provinces in Turkey, infestation rates ranging from 27.33% to 100% were detected, including *C. columbae, M. gallinae, G. bidentatus, Megninia columbae, Goniocotes hologaster, D. gallinae, P. canariensis* and *A. reflexus* species have been reported (Tiğin, 1973; Gıcık, 1999; Köroğlu & Şimşek, 2001; Dik, 2010; Şenlik *et al*., 2005; Değer *et al*., 2010; Elmacıoğlu *et al*., 2018). In studies conducted on pigeons, it has been reported that the most common and widespread species is *C. columbae* (Tiğin, 1973; Gıcık, 1999; Dik, 2010; Değer *et al*., 2010; Elmacıoğlu *et al*., 2018; Begum & Sehrin, 2011; Musa *et al*., 2011; Jahantigh *et al*., 2016; Rezaei *et al*., 2016). In our study, 52.8% of the pigeons we examined for ectoparasites were found to be infested with one or both of the *C. columbae* and *G. bidentatus* species to varying degrees and the most common species was found to be *C. columbae.*

The general infestation rate determined in this study was in Istanbul (89.8%) (Gülanmer *et al*., 2002), in Ankara (59%) (Gıcık, 1999), in Van (100%) (Köroğlu & Şimşek, 2001; Değer *et al*., 2005) and in Bursa (72%) (Şenlik *et al*., 2005) and significantly higher than the rate reported by Tigin et al. (1973) (27.33%). It is similar to the rate reported in Antakya (Elmacıoğlu *et al*., 2018).

While various studies conducted around the world reported that the gender of pigeons did not affect the degree of infestation (Gothe & Imhoff, 1975; Petryszak, 2000), Kulisic reported that infestation was higher in adults than in young people and Petryszak et al. (2000) reported that age did not affect the degree of infestation. In studies conducted in Turkey, Gıcık (1999) reported that the infestation rate was higher in young people than in adults and females compared to males and Şenlik (2005) reported that the infestation rate was higher in adults than in young people and males than in females, but they did not find this difference statistically significant. Again, in a study conducted in Antakya (Elmacıoğlu *et al*., 2018), although the infestation rate in adult pigeons was found to be higher in females than in young ones, the difference was not found to be statistically significant. In this study, although the infestation rate was found to be higher in adults than in young people, in males compared to females, no statistically significant difference was detected.

5. Conclusion

As a result, it has been determined that domestic pigeons raised for hobby purposes in Diyarbakır province are widely infested with ectoparasites and we think that the pigeons should be treated periodically using appropriate insecticides.

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