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Objects as habitats of various pathogens in the hunting-ground

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ABSTRACT

Continuous monitoring in 2001 and 2002, of the microflora abundance at several objects, vehicles, trees and water bodies in the hunting-ground Mačkovac, indicated the presence of several micro-organisms during the whole time period. Thus the infections in wild-game populations is made possible by this pathogens. Disinfecting measures concerning the exclusion of the infection are required in the maintenance of the zoohygienic conditions in the hunting-ground.
(Keywords: hunting-ground, micro-organism, animal hygiene)

INTRODUCTION

For a long period of time a large interest is assigned into maintenance of the zoohygienic conditions in the hunting-grounds, with primary purpose disposing the carcasses and decreasing the spreading of the various disease vectors (*Brudnjak*, 1989a; *Cvetnić*, 2002; *Kalenić*, 1995; *Tucak at al*., 1989; 2000). The aim of this work was to determine which objects, vehicles and things, present and utilised in the habitat of the hunting-ground, hosts micro-organisms that possess pathogenic characteristics, and to compare seasonal variation in their distribution in the course of the year.

MATERIALS AND METHODS

Study area was the hunting-ground Mačkovac (Djakovo, Croatia). Standardised sampling methods by swab-stick from various objects, things, tractor wheels and surface of the water bodies, and culturing the micro-organisms at agar plates have been used (*Brudnjak*, 1989b; *Kalenić* and *Mlinarić-Galinović*, 1997). Analyses were carried out at the Veterinary Institute in Vinkovci. The following micro-organisms have been studied: *Bacillus sp, Streptococcus sp., Coliformic bacteria, Escherichia colli, Proteus sp., Yeasts and Molds,* in all four seasons.

Swab samples was collected from the following objects in the hunting-ground:

- pine tree (*Pinus sylvestris*), serving as animal scratching point
- beech tree (*Fagus sylvatica*), serving as animal scratching point
- tractor wheels
- mud-pool 1, situated within the forest
- feeding place for piglets
- mud-pool 2, situated near the food warehouse

RESULTS AND DISCUSSION

The bacteriological and mycological investigations from the numerous sampled swabs resulted in the isolation and determination of the micro-flora composition (*Table 1*).

Table 1

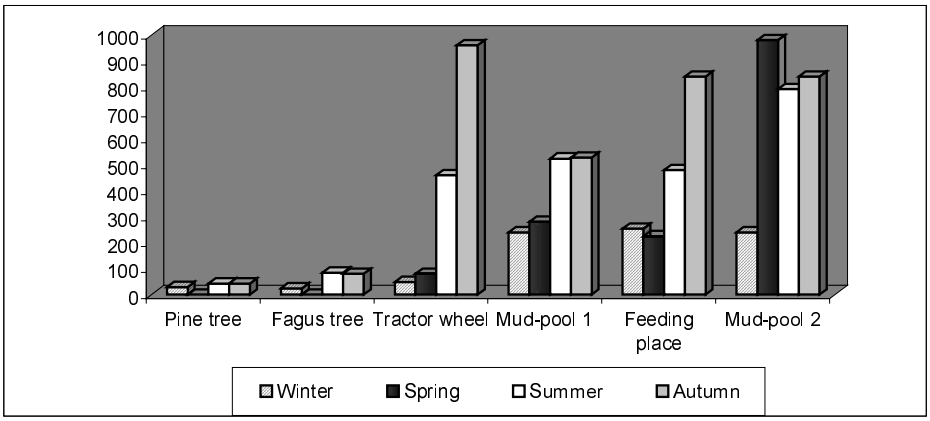
Composition and seasonal distribution of the micro-organisms in the hunting-ground

Swab sample		Pine tree	Fagus tree	Tractor wheel	Mud-pool 1	Feeding place	Mud-pool 2
Number of bacteria in sample	W	28	24	48	240	254	240
	SP	0	0	80	280	224	98
	S	42	84	460	524	480	792
	A	42	80	960	528	840	840
Bacillus sp.	W	+	+	+	+	+	+
	SP	-	-	-	+	-	+
	S	+	+	+	+	-	+
	A	+	+	+	+	+	+
Streptococcus sp.	W	+	-	-	+	-	+
	SP	-	-	-	-	-	+
	S	+	-	-	-	+	+
	A	-	-	-	-	+	-
Coliformic bacteria	W	-	-	-	+	+	+
	SP	-	-	+	+	+	+
	S	+	+	+	+	+	+
	A	+	+	-	+	+	+
E. colli	W	-	-	-	-	-	-
	SP	-	-	+	-	-	+
	S	-	+	-	-	-	+
	A	-	-	-	-	-	-
Proteus sp.	W	-	-	-	-	-	-
	SP	-	-	+	+	+	-
	S	0	+	+	+	+	+
	A	-	-	+	+	+	-
Yeasts	W	-	-	-	+	-	+
	SP	-	-	-	+	+	-
	S	+	+	+	+	+	+
	A	+	-	+	+	+	-
Molds	W	+	+	+	+	+	+
	SP	-	-	+	-	+	+
	S	+	+	+	+	+	+
	A	+	+	+	+	+	+

Seasonal dynamics of total number of bacteria is shown in *Figure 1*.

Figure 1

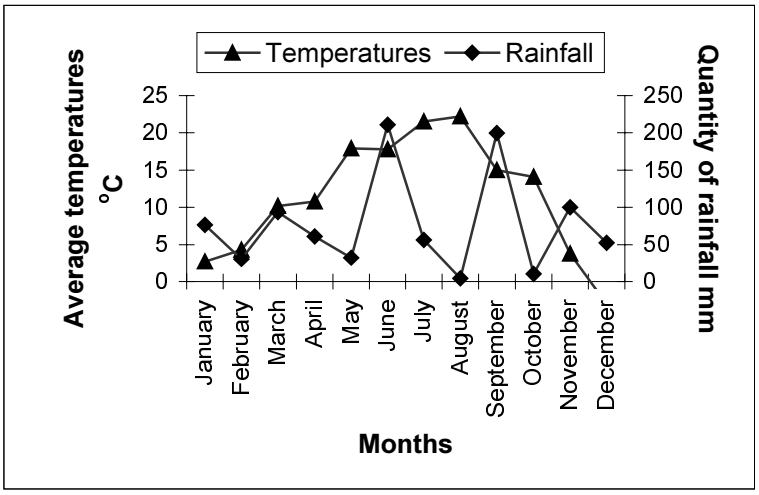
Seasonal dynamics of total number of bacteria



Seasonal dynamics of average monthly temperatures and precipitation in hunting-ground Mačkovac, during the study period, is shown in *Figure 2*.

Figure 2

Seasonal dynamics of average temperatures and rainfalls



In the winter period the presence of micro-organisms is low at all habitats, which is explained by unfavourable living conditions (low monthly temperatures and cold).

In the spring, after the snow-melting and with rising of temperature the activity of micro-organisms is high at mud-pools, where the wild-game is gathering for the feeding.

The period with maximum monthly rainfalls in early summer and start of autumn, coincidence to the highest total number of micro-organisms. This is also a period of full grown plant cover and enlarging of the animal populations (*Tucak at al*., 2001).

High summer temperatures strongly increase reproduction of micro-organisms at all habitats

The results indicates that previously neglected objects and things (tractor wheels, trees with tracks of animal scratching), have a significant role in the assessment of the epyzootiological situation in the hunting-ground (*Cvetnić*, 1997; *Davis* and *Anderson*, 1971; *Kostović-Knežević*, 1996). The most important factor disturbing the animal hygienic conditions is illness of wild-game which constituted a large input of pathogenic micro-organisms through the excretion (*Kotrla*, 1984; *Tucak* and *Bukvić*, 1980; *Tucak at al.*, 2000). Many artificial objects serving as feeding places and warehouses are built in the hunting-ground. It is known that surface of this objects accommodates numerous micro-organisms, many of them are pathogenic and harmful for the wild-game. So it can be said for the wheels of tractor and restricted shallow mud-pools. Various animal species living in the ecosystems of the hunting-ground eliminates parasites and other micro-organisms from their bodies by scratching on the tree trunks. The result is accumulation of the large quantity of different pathogens into crevices or scratching tracks created on the tree trunks.

CONCLUSIONS

During the 2001 and 2002, a seasonal distribution of micro-flora in summer, autumn, winter and spring has been monitoring. The presence of various micro-organisms at objects, things and water-bodies in the habitats of the hunting-ground is recorded. Total number of micro-organisms was under the parameters defining infectious dosages, so zoohygienic condition in the hunting-ground was undisturbed and spreading of disease was not possible. It is obvious that seasonal dynamics influence on the composition and quantity of the microbial populations.

The results of our study recommends disinfecting procedure at the micro-organisms habitats for the purpose of the animal hygienic improvement in the hunting-ground.

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