BACTERICIDAL CAPACITY OF SERUM IN PIGS SUBSEQUENT TO *HIPOPPHAE RHAMNOIDES* TREATMENT

Laura Andreea RUSU[1], Mihaela NICULAE[1], Aurel VASIU[1], Emoke PALL[1], Diana Ioana OLAH[1], Constantin CERBU[1], Carmen Dana ŞANDRU[1], Marina SPÎNU[1],

[1] Faculty of Veterinary Medicine ,University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania

Introduction

Low input small farms are widely spread in Romania, as it is a traditional growing system. Its disadvantage is represented by pigs long exposure to infectious pathogens and immune stress, which could be reduced by improving welfare measures and the use of phytoterapy (Anca Hermenean et al., 2003).

Fig. 1. Free-range raised swine shelter

Aims

Hypopphae rhamnoides is a shrub widespread in Europe and Asia, which posses various therapeutic effects. The research aimed to investigate the effects of a whole fruit extract of the plant on humoral immunity in pigs raised in free-range system (Suryakumar et al., 2011)

Material and methods

The research was conducted on 2 batches, treated pigs (5 ml of commercial syrup/day/individual for 5consecutive days, PO) and untreated. To estimate the antioxidant effect of sea-buckthorn, immunological tests were performed (scavenging effect over DPPH); spectrophotometrically measurement (535 nm, d=0.5, SUMAL PE2, Karl Zeiss, Jena) of minimal inhibiting (MIC) and minimal bactericid (MIB) serum capacity, against *Shigella spp., K. sedentarius, S. werneri* and *S. sciuri.*

Results

The antioxidant activity of the syrup was intermediate (53.05%). Subsequent to incubation, the sera from treated pigs had a bactericidal effect on *Shigella* spp. and a bacteriostatic one on *S. sciuri*. *Shigella* spp. growth was inhibited after repeated cultivation at serum dilutions of ½-1/32 while for *S. sciuri* the active dilutions were much lower ½-1/4. In the case of untreated piglets, the sera were inefficient in stopping bacterial growth or killing any of the tested bacteria.

	M	PHA	Alc	Ea	Ep	Cat1	Thy	Vm	Sy	Ar	Cat2	Mest
S2	44.85	67.88	41.21	78.79	68.49	74.55	57.58	74.55	79.39	76.97	79.39	78.18
S5	55.76	83.03	76.36	72.12	58.18	66.67	60.61	56.97	62.43	56.36	58.79	62.43
S7	36.97	70.30	72.73	41.21	58.79	39.40	53.94	73.94	63.64	64.85	49.70	45.46
S8	18.18	49.09	46.67	40.61	87.88	54.55	43.64	62.43	35.15	20.61	72.12	60.61
S9	50.91	52.73	73.94	64.85	78.79	70.30	66.67	57.58	58.79	51.52	53.33	57.58
Medie	41.33	64.61	62.18	59.52	70.42	61.09	56.49	65.09	59.88	54.06	62.67	60.85

Fig. 2. DPPH scavenging effect, using various vegetal extract, in treated batch, before treatment

	M	PHA	Alc	Ea	Ep	Cat1	Thy	Vm	Sy	Ar	Cat2	Mest
S2	52.12	85.45	52.73	82.42	84.85	76.97	66.06	76.36	81.21	80.61	83.64	84.24
S5	68.49	86.06	76.97	79.39	85.45	84.24	75.15	78.18	69.70	68.49	99.39	81.82
S7	55.15	80.61	76.97	83.03	82.42	83.03	73.94	86.06	66.67	85.45	85.45	60.61
S8	58.18	79.39	69.70	73.94	89.09	85.45	57.58	72.12	61.21	58.18	86.67	71.52
S9	64.24	67.27	79.39	70.91	82.42	75.76	70.91	72.12	66.67	67.27	72.73	64.24
Medie	59.64	79.76	71.15	77.94	84.85	81.09	68.73	76.97	69.09	72.00	85.58	72.49

Fig. 3. DPPH scavenging effect, using various vegetal extract, in treated batch, after treatment

Conclusion

In vitro antibacterial activity of the serum from pigs treated with *Hippophae rhamnoides* syrup supported the positive effect of the *in vivo* treatment inductive of increased MIC and MIB, useful in protection against bacterial diseases.

Fig. 4. Used sea-buckthorn syrup

References

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