Bee products' applying in the veterinary medicine

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The aim of our study

- to make a summary of literature and of our own researches in order to prove the feasibility of practical applying of bee products in the field of veterinary medicine.

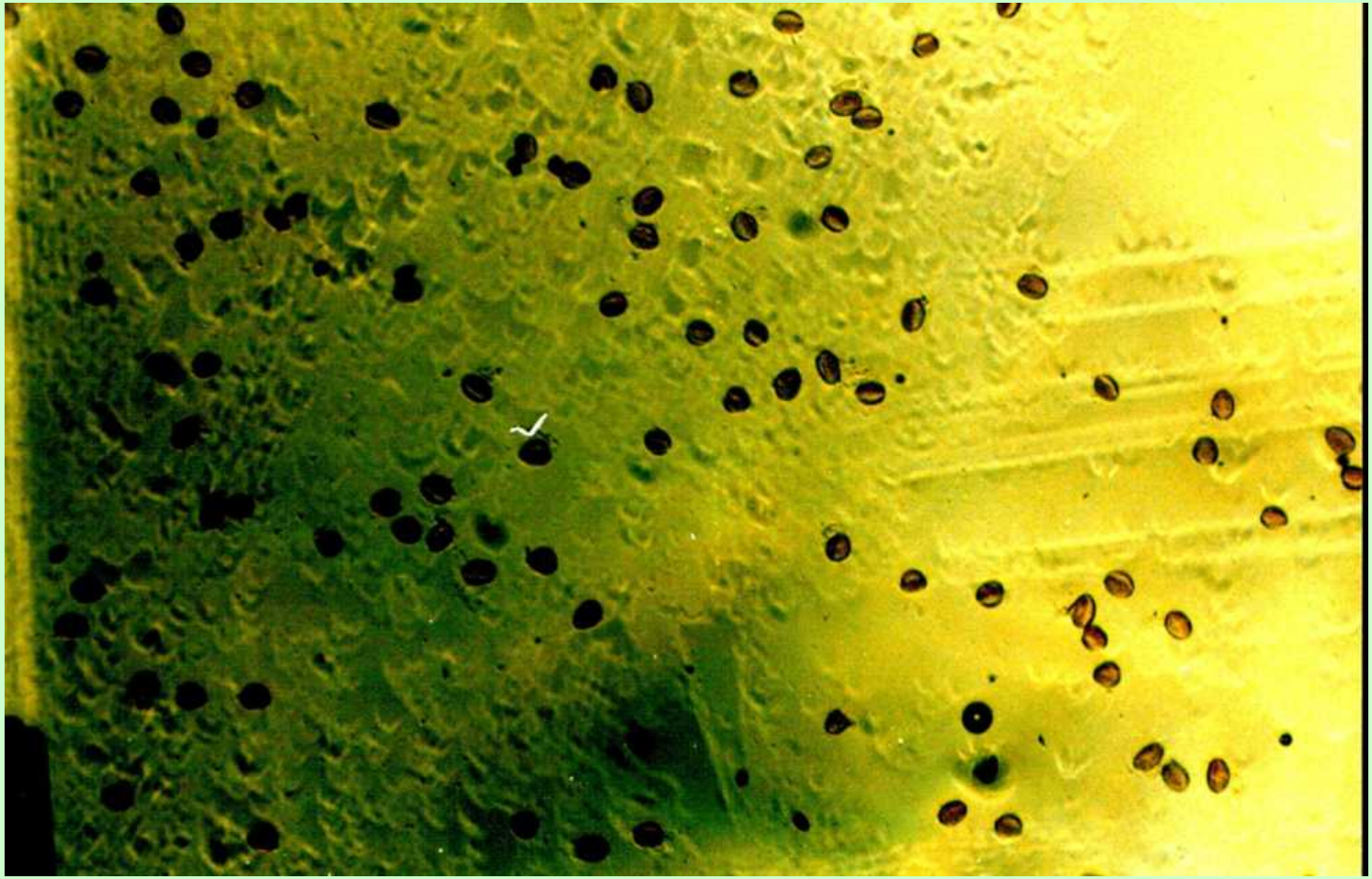

Пшоно
Пшоно
Коштовий
Бджолиний

Content of pollen lean

Substance	Full content	Quantity of content
Essential amino acids	Arginine, histidyn, leucine, lysine, methionine, phenylalanine, threonine, valine, tryptophan	Arginine – 4,6-6,0% до білка leucine – 7,1-9,0 lysine – 6,3-7,7 valine – 5,8-11,2 Isoleucine - 5,1-7,0 Phenylalanine - 4,1-5,9
Essential fatty acids	Linoleic, linolenic, arachidonic	The total content: 63,3-83,7 (% of fatty acids)
Vitamins	Thiamine, riboflavin, B_3, nicotinamide, PP, B_{12}, folic acid, calciferol, tocopherol, biotin, carotenoids, inositol	Thiamine - 5,75-40,80 (mg / kg) Riboflavin - 16,3-19,2 Nicotinamide - 98,0-210,0 Folic acid - 3,4-6,8 Tocopherol - 21-170 mg% Inositol - 30-40 mg / kg Carotenoids - 2,4-999,6 mg / kg

Biologically active substances in pollen lean

Substances	Full content	Quantity of content
Macroelements and microelements	**K, Mg, Ca, Cu, Fe, Ni, Ti, Wn, Cr, Ba, Al, Md, B, Pl, Ag, Sr, Sn, Zn, As, Co, Be, V**	**K – 20-45 (% to ashes) Cu – 1-15 P – 1-20 Si – 2-10**
Flavonoids and other phenolic compounds	**eucoantocians, catenin, flavonols, hlohenic acid**	**81,9-487,5 mg% dry matter 39,0-159,7 147,6-2549,9 63,0-801,2**



Pollen lean. X 200.

Table 1

Effect of pollen lean on the performance of cellular humoral protective factors 2.5-month-old calves(M±m, n=10)

Indicators	Group of animals		p<
	Control	Estimated	
Bactericide activity of serum blood, %	46,0 ±0,29	48,8±0,24	0,001
Lysocyme activity of serum blood, %	17,0±0,18	18,4±0,20	0,001
Phagocyte activity of neutrophiles, %	47,1±0,28	49,4±0,29	0,001
Phagocyte index	7,7±0,15	8,8±0,35	0,01
Absolute phagocytosis, 10^3.mic. cells in 1 μl blood	8,0±0,11	8,5±0,21	0,05
Nonspecific antibody titer	1:6	1:8	0,001

Table 2

Indicators of cell and humoral factors of immunity levels using pollen lean for healthy and calves with catharal bronchopneumonia after the treatment (n = 10, M ± m)

Indexes	Control (clinicaly health)	I group (basic treatment)	$p_к$<	II group (basic treatment+be e pollen)	$p_к$<	p_1<
BASB, %	46±0,81	37,3±0,40	0,001	46,5±0,44	-	0,001
LASB, %	17,1±0,33	16,9±0,38	0,5	18,9±0,31	0,001	0,001
FA, %	46,5±0,69	43,5±1,19	0,05	49,9±0,68	0,001	0,001
IF	7,3±0,25	7,8±0,09	0,1	8,4±0,23	0,01	0,05
АФ, th mkl cells in 1 mkl of blood	8,3±0,25	7,9±0,21	0,1	8,4±0,09	0,5	0,05
Nonspecific antibodies titer	1:6	1:6	-	1:6	-	-

Table 3

Leucogram of healthy and sick calves with catarrhal bronchopneumonia after the treatment (n = 10, M ± m)

Indexes	Control (clinically health)	I group (basic treatment)	$p_к$<	II group (basic treatment+ bee pollen)	$p_к$<	p_1<
Leucocytes, G/l	9,3±0,18	9,1±0,14	-	8,8±0,05	0,01	0,05
Basophils, %	0,5±0,09	0,3±0,05	0,01	0,1±0,01	0,001	0,01
Eosiniphils, %	5,9±0,08	5,8±0,1	-	5,7±0,02	0,05	-
Young neutrophils, %	-	0,1±0,06		Not detected		
Stab neutrophils, %	3,1±0,35	4,9±0,32	0,001	4,4±0,07	0,001	-
Segmented neutrophils, %	23,6±0,67	21,6±0,54	0,001	20,0±0,29	0,001	0,001
Lymphocytes, %	64,0±1,05	62,6±0,75	-	65,5±0,24	-	0,001
Monocytes, %	2,9±0,12	4,7 ±0,28	0,001	4,3±0,06	0,001	-

Table 4

Biochemical indices of blood serum in calves with catarrhal bronchopneumonia after the treatment **(n=10, M±m)**

Indexes	Control group	I group	$p_к<$	II group	$p_к<$	$p_1<$
Common calcium, mmol/l	2,5±0,08	2,4±0,05	-	2,5±0,08	-	-
Neorganic phosphorus, mmol/l	1,81±0,11	1,26±0,03	0,001	1,43±0,06	-	0,001
Reserve alkalinity, vol% CO2	55±1,6	54±1,43	-	56±1,19	-	-

Conclusions

- The results of bee products' tests expanded our knowledge concerning the mechanism of applying of these medicines and its' influence on the morphological, biochemical and immunological parameters (indexes) of the pet organism, which is very important for veterinary medicine to improve the treatment efficiency and for diseases prevention, which are accompanied by the immunodeficiency.

Thank you for attention!