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STACHYBOTRYOTOXICOSIS IN CATTLE

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## STACHYBOTRYOTOXICOSIS IN CATTLE

Following is the translation of an article by Professor B. F. Moroshkin, A. A. Kostina, and Ye. B. Ivanskiy, Candidates of Veterinary Sciences, in the Russian-language journal Veterinariya (Veterinary Medicine), Vol 41, No 1, 1964, pages 98-100.]

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Stachybotryotoxicosis of cattle has been recorded in several oblasts of the Soviet Union. This disease arises as the result of maintaining the animals on coarse feeds, affected with the fungus Stachybotrys alternans. The development of the disease is also promoted by the heavy feeding of animals with acidic feeds (silage, bagasse, etc.).

Clinical signs of the disease in animals infected under natural conditions and under experimental are the same. The course of the disease is latent (preclinical) and manifest (clinical). The duration of the latent stage is 2 - 3 days, which depends on the toxicity of the fungus, the extent of infestation of the feeds, and the consumption by the animals of acidic feeds. When timely diagnosis and replacement of fungus-infected coarse feeds (with the simultaneous exclusion from the diet of acidic) the disease can be terminated. When the action of the fungal toxin is strong and long lasting, the latent stage of the disease becomes clinical, which lasts for 12 days and in 75-85 % of the cases ends with the death of the animals.

In the latent stage of the disease, the composition of the peripheral blood changes (leukopenia with relative neutrophilia and a shift to the left, and sometimes lymphocytosis) and in the composition of the bone marrow punctate (reduction of the total amount of cellular elements accompanied by a decrease in cells of the erythroblastic series and by an increase in cells of the myeloid and



Results of the study of blood and marrow punctate in ill and experimentally infected animals (~~Tables 1 and 2~~) show that in the pathogenesis of stachybotryotoxicosis the action of the toxin of the fungus Stachybotrys alternans on the hemopoietic organs is of ranking importance.

Legend to Table 2, which appears on following page

Remark. The calf of Solov'ye was investigated during 1961.  
LEGEND: a) animals and characteristics of experiment; b) stages of the disease; c) time of investigation (1962); d) blood; e) percentage; f) amount per  $\text{mm}^3$ ; g) leukocytic formula; h) bone marrow punctate; i) erythrocytes (million); j) leukocytes (thousands); k) B; l) Z; m) Yu; n) P; o) S; p) L; q) cellular elements per  $\text{mm}^3$  (thousand); r) group (%); s) myeloid; t) lymphoid; u) erythroblastic; v) the oow Nadezhda (fed daily from 22 February 1962 on straw infected with the fungus, and on silage); succumbed on 1 April; w) the calf Lir (daily given the fungus culture and lactic acid from 5 to 10 January 1962); succumbed on 15 January; x) the heifer Chereshnya (fed daily from 24 April to 8 May 1962 on fungal culture); succumbed on 16 May 1962; y) the calf Konus (given fungal culture daily from 5 to 17 January 1962); succumbed; z) the calf Solov'ye (received rinsing of the fungal culture daily from 7 to 27 December 1961); became ill during the latent stage; a') the calf Murvey (given daily, from 24 April to 8 May 1962, boiled fungal rinsing); became ill during the latent stage; b') latent; c') clinical; d') recovered; e') before experiment; f') March; g') January; h') May; i') February; j') December; k') April.

TABLE 2

Indices of Studies Made of Blood and Bone Marrow Punctate in Cattle Experimentally Infected with stachybotryotoxicosis (fungal strain isolated in the Kolkhoz imeni Shevchenko, Volynskaya Oblast)

Животные в характере стада опыта	Стадия болезни	Время исследования (1962 г.)	Процент инфицированных	Количество животных в стаде	Составляющие формулы										M	K	Kатодных в 1 мм <sup>2</sup> мазка	Группы (%)									
					K	M			C			M	H	L				H	H	H							
						К	М	С	М	П	С																
1) Корова Навская (с 22 февраля 1962 г. ежедневно скрапывали солонку, пораженную грибом, в слюне) 1 апреля вилас	Скрытая	До опыта 7 марта	62	5,6	6,5	0,5	7,5	2,5	4,0	28,0	54,0	8,0	38,0	30,6	15,4	51,6											
																	68	6,5	7,8	2,5	28,0	30,0	30,0	32,2	20,2	30,2	17,0
																	72	7,5	10,7	6,5	30,0	39,2	10,0	31,0	19,8	37,8	6,4
2) Бычок Лип (с 5 по 10 января 1962 г. ежедневно давали культуру гриба в молоко) 15 января	Скрытая	До опыта 7 января	65	9,5	6,9	0,5	6,5	0,2	5,0	27,5	54,0	13,5	33,5	37,4	12,6	49,0											
																	67	10,8	9,9	0,2	6,5	36,5	46,1	35,6	46,1	18,0	
																	85	15,5	49,9	1,5	16,0	30,5	1,0	18,1	0,5	81,0	8,0
3) Телка Черешня (с 24 апреля до 8 мая 1962 г. ежедневно скрапывали культуру гриба) 15 мая	Скрытая	До опыта 17 мая	42	5,6	7,9	0,5	15,5	1,0	1,0	22,5	54,0	9,5	24,6	29,0	29,4	41,6											
																	34	5,8	11,4	0,5	6,0	44,0	8,5	4,4	51,8	13,6	
																	25	3,2	0,7	1,0	2,0	3,0	14,5	3,8	5,0	2,0	
4) Бычок Конус (с 5 по 17 января 1962 г. ежедневно давали культуру гриба) заболел	Скрытая	До опыта 11 января	59	7,7	8,6	1,0	4,0	0,5	5,5	25,5	48,0	17,0	46,1	34,2	29,6	45,2											
																	70	9,4	2,7	9,5	65,0	12,5	10,5	23,2	22,0	21,2	21,2
																	58	7,7	1,4	2,0	8,0	17,0	23,0	4,4	79,0	0,8	
5) Бычок Солоней (с 7 по 27 декабря 1961 г. ежедневно по утрам давали культуру гриба) заболел в скрытой стадии	Скрытая	До опыта 20 декабря	58	7,1	0,5	1,0	1,0	1,0	1,0	17,0	48,0	9,0	0,5	9,6	89,2	1,2											
																	50	6,4	0,4	3,0	1,0	76,0	22,0	0,5	92,4	4,4	
																	39	4,3	5,3	12,5	19,0	2,1	28,0	2,1	2,0	83,2	14,8
6) Бычок Муравей (с 24 апреля по 8 мая 1962 г. ежедневно давали проквашенный сывя гриба) заболел в скрытой стадии	Скрытая	До опыта 28 апреля	46	6,2	6,6	0,5	5,0	4,0	5,0	28,0	39,0	23,0	37,1	15,8	17,0	67,2											
																	50	9,1	5,5	3,5	28,0	50,0	16,0	76,1	45,0	41,8	
																	52	6,7	1,8	2,0	24,0	41,5	4,5	6,4	60,4	5,2	
7) Бычок Муравей (с 24 апреля по 8 мая 1962 г. ежедневно давали проквашенный сывя гриба) заболел в скрытой стадии	Скрытая	До опыта 8 мая	36	5,5	3,4	0,5	3,5	1,0	8,5	29,5	44,5	10,0	38,0	33,0	19,4	49,4											
																	46	6,2	6,6	0,5	4,0	34,0	14,0	30,8	33,0	19,6	
																	31	4,2	8,5	2,0	17,0	30,5	18,0	38,0	66,4	3,4	