

## BIOCHEMICAL AND BREEDING ASPECTS OF COW RESISTANCE TO MASTITIS

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### SUMMARY

The results of studying the biochemical status of blood serum in 540 mastitis and healthy cows are presented. The differences for some biochemical indexes between sick and healthy cows are found.

**Key words:** dairy cattle, mastitis, biochemical status.

### INTRODUCTION

The main task of breeding is to develop and improve to produce highly productive breeds and lines of animals fitting new technologies in their use. However, breeding can be successful only when high indexes of productivity are obtained having animal health preserved and animal use continuous.

The conditions of breeding and keeping, observations of machine milking regulations, active motion and other favorable factors promote natural resistance of animal organism and prevent streptococcal infection to develop.

### MATERIALS AND METHODS

Researches were carried out in breeding-stock of over 500 cows on leading cattle-breeding farms in West Siberia. Bacteria amount in young animals was evaluated for accelerated reaction with methylene blue. Mastitis season clinical form was identified visually on a milk control plate and for settling sample. Mastitis subclinical form and irritations of mucus coat were revealed by 5% demastin (samples were taken from each udder lobe) and by 20% demastin (milk general sample from a cow). In evaluating the sample data the presence of clot, its tightness and colour were accounted. A poor clot was considered as the irritation of mammary gland mucus, and a tight one as a symptom of inflammation process.

Bacteria amount in milk was defined for reductase sample. Biochemical investigations of blood were carried out by common methods.

### RESULTS AND DISCUSSION

Significant role to protect udder against infections is played by teat canal that is reliable barrier on the way of bacteria to penetrate. Epithelium of canal mucus is known to produce antibacterial substances containing non-saturated fat acids which inhibit the growth of staphylococci and streptococci.

Cow mammary gland is known to be able to develop antibodies of all classes of immunoglobulins, the quantity of them being determined genetically. Blood data on both healthy and mastitis sick cows is presented in the table. Blood serum of sick cows was a decreased content of albumin (by 0.6%) and globulin (by 0.2%), reduced amount of inor-

ganic phosphorus (0.34 mg%), carotene (68 mg%), general lipids (18 mg%) and cholesterol (0.1 mg%). The reduction of Y-globulin protein fraction in the blood of sick cows results probably in the retarded synthesis of immunoglobulins in mammary gland. The secretion of antibacterial substances of unsaturated fat acids goes down in epithelium cells of mammary gland, the lack of lipids is observed in blood serum of mastitis cows.

Table 1. Biochemical indexes of blood

Indexes	Animals	
	Healthy	Mastitis
General protein, g/l	7.77±0.7	7.80±0.6
Albumin, %	40.7 ± 2.1	40.1±2.4
Globulin, %		
A	16.8±1.6	17.2±1.3
B	13.4±1.1	13.8±1.5
Y	28.9±2.8	28.7±2.4
Sugar, mg%	64.4±4.0	65.2±4.6
Calcium, mg%	11.58±1.3	12.4±1.1
Carotene, mg%	0.462±0.01	0.344±0.02

Undoubtedly, the inflammation process is one of the primary protection mechanisms and the reaction becomes pathological only in exceeding physiological limits. The inflammation process can progress fast. Activated ferments stimulate chain and cascade reactions where each successive stage runs faster than the previous one providing almost immediate autocatalytic acceleration in the whole sequence of reactions.

#### REFERENCES

Reck F. et al. The cell in medical accidence. - N. V.: Academic Press, 1975, - 625 p.

