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ETIOLOGY AND MODERN DIAGNOSTIC METHODS OF MASTITIS DISEASE

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Abstract

This article explores the etiological factors of mastitis, a widespread udder disease in dairy cows, with a particular focus on the effectiveness of modern diagnostic methods. A comparative analysis of Dimastin and Mastidin reagents was conducted to assess their sensitivity in detecting subclinical mastitis. The study results emphasize the importance of early detection and preventive measures in reducing economic losses and maintaining dairy productivity.

Keywords: mastitis, etiology, subclinical mastitis, diagnosis, cow, Dimastin, Mastidin.

Introduction

The development of animal husbandry, especially dairy cattle farming, is one of the strategic sectors of agriculture in the Republic of Uzbekistan. The growing demand

for dairy products and increasing competition in the domestic market necessitate the breeding of healthy and highly productive dairy cows. However, chronic udder diseases such as **mastitis** remain one of the most frequent and economically damaging health issues in dairy farming.

Mastitis is an inflammatory condition of the udder, primarily caused by infectious agents such as **streptococci, staphylococci, coliform bacteria**, and other opportunistic pathogens. The disease manifests in both clinical and subclinical forms. The subclinical form is particularly dangerous due to its asymptomatic nature, often leading to delayed diagnosis and treatment.

Given the impact of mastitis on milk quality and yield, as well as the potential for significant economic loss, the early diagnosis and effective treatment of mastitis — especially in its subclinical stage — is considered one of the most critical challenges in modern dairy veterinary practice.

Relevance of the Topic

Epidemiological studies show that **30–35%** of dairy cows in farms suffer from subclinical mastitis, which reduces milk yield by **15–20%**. Infected animals produce milk with decreased levels of fat, protein, lactose, and other valuable components. Moreover, subclinical mastitis negatively affects overall animal health and reproductive performance.

Milk from cows with subclinical mastitis often contains pathogenic microorganisms, making it non-compliant with hygiene standards. Consequently, such milk may be rejected by processing plants or purchased at reduced prices, leading to economic losses.

Modern express diagnostic tools such as **Dimastin** and **Mastidin** are increasingly used in veterinary practice. These reagents provide fast, affordable, and reliable results,

allowing early detection of mastitis. Their diagnostic sensitivity and practical usability are the focus of this study.

Materials and Methods

The study was conducted on several dairy farms in the Republic of Karakalpakstan. Milk samples were collected from all four quarters of the udder from 150 dairy cows suspected of having subclinical mastitis. The samples were evaluated using the following methods:

1. **Clinical examination** – including udder hygiene, milking technique, general health status, and palpation of the udder.
2. **Chemical testing** – using 5% Dimastin and 2% Mastidin reagents to detect coagulation, viscosity changes, and color reactions in milk samples.

Results and Analysis

The diagnostic accuracy of each reagent is presented in the table below:

Reagent	Positive (%)	Doubtful (%)	Negative (%)
Dimastin (5%)	25	10	65
Mastidin (2%)	31.5	11.5	57

Analysis:

Compared to Dimastin, Mastidin demonstrated a **7% higher detection rate** of subclinical mastitis, indicating greater diagnostic sensitivity. Both tests proved practical, cost-effective, and rapid for field application. However, combining these chemical tests with clinical assessments enhances overall diagnostic accuracy.

Conclusion

This study confirms that early detection of subclinical mastitis significantly improves milk productivity and herd health while minimizing economic losses. Among the two tested reagents, **Mastidin** showed higher diagnostic sensitivity and reliability compared to Dimastin. Timely identification and treatment of subclinical mastitis are essential components of effective herd management and veterinary care in modern dairy farming.

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