



Results of Determining the Calif Colibacteriosis Sensitivity to Antibiotics

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Abstract: The article details the findings of an investigation on the antimicrobial drug sensitivity of isolated E. coli cultures from ill calves using the technique of paper disks impregnated with an antimicrobial agent. High antibiotic action was demonstrated against E. coli cultures; limoxin and tylosin were not sensitive, nor were ditrim, enraflox, or penstrep. However, only enraflox and penstrep were found to be active when their impact on the intestine's overall microbial environment was tested.

Keywords: colibacillosis, calves, drug, E.coli, culture, zone, paper disk, sensitivity.

Relevance of the research. Meat and dairy products are crucial components of the population's diet since they are high in protein. One of the main agricultural sectors in Uzbekistan, livestock farming plays a significant role in feeding the country's people. The Republic of Uzbekistan's President issued decrees PK-308 and PK-842 that outlined goals for expanding livestock husbandry as a means of feeding the populace. Increasing the quantity of animals, improving the productivity of livestock and poultry, and providing the industry with efficient veterinary services can all help to overcome these problems. Obtaining healthy progeny, cutting down on animal disease losses, and preserving livestock to the greatest extent are additional resources for completing the tasks at hand. The creation of novel techniques and tools for identifying, managing, and preventing viral diseases in farm animals, which significantly reduce the value of livestock [5,8,9,10], is of paramount importance.

One of the most significant challenges in producing healthy young animals, the foundation for herd reproduction, is the prevention of illnesses in calves. In this regard, the improvement of policies aimed at enhancing the efficacy of the prevention and control of infectious disorders of the digestive tract of young calves [1,2,3,4,7] and the development of tools for thorough diagnostics are of utmost importance.

Purpose and objectives of the research. Along with prevention-related concerns, the study's goal is to examine various forms of gastrointestinal disease treatment for calves. Studying the sensitivity of E. coli cultures derived from ill calves is the task at hand.

Materials and research methods. The work was done in both industrial and laboratory settings. A number of the most potent broad-spectrum antimicrobial medicines were examined on E. coli cultures concurrently with research on the efficacy of some specialized medications, hyperimmune serums, and vaccinations.

By using paper disks impregnated with an antimicrobial agent or by using the procedure of serial dilutions, the sensitivity of isolated *E. coli* cultures was investigated. Tests were conducted in real-world production settings while adhering to hygienic and veterinary guidelines for the proper feeding and care of expectant cows and newborn calves in accordance with current regulations.

We tested the sensitivity of isolated bacteria in the lab to ceftriaxone, limoxin, farmazin, baytril, macrolan, penstrep, and enraflox. Each *Escherichia* serogroup's five strains were examined.

We examined the drug's impact on the bacterial strains we isolated, *E. coli* 09, 026, 078 serovars, in an effort to determine its activity *in vitro* using the paper disk method.

A microbial suspension (each strain individually) was made from an 18-hour agar culture that contained 1 billion microbial bodies in 1 ml according to the optical standard in order to ascertain the susceptibility of pathogenic cultures to the action of the test chemicals. 20 ml of molten medium (MMA) were placed into sterilized Petri dishes for the investigation. A suspension of a pure culture of the microorganism made from the washout from the agar culture was applied to the surface of the solidified medium as an inoculant. Discs were then placed on top of the infected medium after the dishes had dried for 30 to 40 minutes at room temperature. The cups containing disks were then maintained in a thermostat at 37°C for 16–18 hours after being held at ambient temperature for an additional 30–40 minutes.

The diameter of the growth inhibition zones surrounding the disc, as well as the diameter of the disc itself, was used to measure the outcomes. With the use of a ruler and graph paper, the zones were measured. Zones of culture growth retardation greater than 14 mm were regarded as nonsensitive, while those greater than 18 mm as very sensitive to the drug.

The experiment to test the sensitivity of the above-mentioned strains of microorganisms was carried out in triplicate.

Result. The study's findings show that *E. coli* cultures were very susceptible to antimicrobial activity; ditrim, enraflox, penstrep, and limoxin and tylosin were not responsive.

We investigated the sensitivity of the microbial association in the intestines of calves in addition to monobacteria. To do this, ill calves' intestinal contents were diluted with physiological solution at a ratio of 1:1000 and then planted in bacteriological dishes. After drying, a disk containing the tested medications was placed on the inoculation's surface, and the findings were recorded after 18–24 hours of incubation in a thermostat set to 37°C.

The intestinal microbiota of sick calves was weak and unresponsive to limoxin and tylosin, and most susceptible to ditrim, enraflox, and penstrep. In contrast to other medications where the border is broken or absent, the boundary of the retention zone is smooth and clearly defined in Penstrep, Ditrim, and Enraflox. This suggests that associations of gut microbes demonstrate some resistance to the effects of specific medications, in contrast to monocultures.

Table 1 Results of studying the sensitivity of isolated *E. coli* cultures to some antimicrobial drugs

Drugs	<i>E.coli</i> 078	<i>E.coli</i> 0101	<i>E.coli</i> 055
Ditrim	26	25	27
Enroflox	25	27	26
Penstrep	21	20	22
Limoxin	9	9	-
Tylosin	8	9	-

Conclusion.

Some medications could be tested in subpar farming situations thanks to the outcomes of laboratory trials. Ditrim, Enraflox, Penstrep, Limoxin, and Tylosin have all been studied for their potential to treat acute gastrointestinal conditions in newborn calves.

The colibacillosis-related bacteria we obtained from young calves were susceptible to ditrim, enroflox, and penstrep. Only enraflox and penstrep, however, were found to be active when their impact on the intestine's overall microbial environment was examined.

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