Volume 2, Issue 03, March 2024 **ISSN (E):** 2938-379X

PREVENTION AND TREATMENT OF SHEEP POISONING BY HELIOTROP PLANT

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Abstract:

This article was prepared on the basis of literature data the article contains information about heliotrope plant species and livestock poisoning from heliotrope.

Keywords: heliotrope, poisoning, hairy heliotrope, elliptic heliotrope, olga heliotrope, prostrate heliotrope, alkaloid.

Introduction

In recent years, a number of decisions have been made by our government in order to develop livestock breeding in our country, ensure food safety, and meet the demand for livestock products (meat, milk, eggs). In particular, the decision of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev of June 1, 2017 on "Measures for organizing the activities of the State Veterinary Committee of the Republic of Uzbekistan" No. on measures" PF-5696, decision PQ-4254 dated March 28, 2019 "On organizing the activities of the State Committee for Veterinary and Animal Husbandry Development of the Republic of Uzbekistan" in order to ensure the rapid development of animal husbandry , aimed at satisfying the daily growing demand of our people for livestock products. However, due to the rapid development of the field, the heliotrope plant, which is found among livestock, causes great economic damage as a result of the death of sheep and lambs [1, 2].

Heliotrope - blue weed, also called common or wild heliotrope. It was discovered in Australia in the 19th century and has been found growing everywhere except the Northern Territory.
Heliotrope is an annual herb for summer planting, growing in meadows or open, cultivated fields. The stem is branched, grows up to 300 mm in height, covered with coarse white hairs. The leaves are gray-green in color, oval in shape, arranged alternately on the stem and have small white flowers.
The seeds germinate in warm, moist conditions after each late spring or summer rain, and seedlings grow where there is no shade and competition from perennials. It is more common in wheat-growing areas than in pastures, and it causes problems during harvest. Heliotrope has a very high seed potential and the seeds can survive for many years.

This plant contains poisons or toxins known as pyrrolizidine alkaloids. Toxins are present at all stages of growth and in all parts of the plant, including the seed [6].

Hairy heliotrope (Heliotropium dasyocarpum Ldb.). The stem is shoulder-branched, 20-50 cm high, the leaves are ovate or oblong, branch-shaped, the upper part is tufted, the flowers are whitened at the ends of the stems and branches, there are four nut fruits.

Elliptical heliotrope (N. ellipticum Ldb.). The height of the stem is 10-40 cm, the flowers are ovate-oblong-oval leaves on hairy long petioles, and there are four nut fruits. Widespread in the Caucasus, Central Asia. It often grows as a weed in semi-deserts and semi-steppes.

Heliotrope hairy (N. ellipticum var. lasiocarpum M. Pop., N. lasiocarpum Fisch. et Mey.). The stem is branched, 20-50 cm high, the leaves are oval-elliptic or almost round, the flowers are located on one side of the flowering branch, the leaves are small at the tops of the stems and branches, the fruit is small, tetrahedral, when ripe it is divided into four hairy nuts.

It is distributed in the Republics of Central Asia, in the sand dunes of the southeast. Fields planted with wheat and barley are affected by heliotrope, it also grows in gardens, steppes, along roads.

Olga heliotrope (N. Olgae Bge.). The stem is 10-40 cm high, branched, downy hairy, the leaves are ovate or rounded ovate, single or double, one-sided, 5 cm long fruit - ovoid, bare nuts. It has been reported to meet in the countries of Central Asia [2,3].

Prostrate heliotrope (N. supinum L.). Annual plant. The stem is branched, elevated, 5-20 cm long, white-gray-fluffy leaves are ovate or oblong, hairy flowers are white in color, one persistent fruit nut is found in lateral or terminal folds.

Heliotrope poisoning (heliotropotoxicosis). Heliotropes are alkaloid plants. Heliotrin C16H27NO5, liziocarpine C2lH33NO7 (GP Menshikov, 1932) found in elliptical (pubescent) heliotrope; in prostrate heliotropia, supine C15H25NO4 alkaloid (G.P. Menshikov, E.L. Gurevich, 1949). Alkaloids are also found in hairy heliotropes with a fragrant smell (A. A. Ataev, 1958) [4,5].

The amount of heliotrim in a dried plant is 0.3 - 0.4%, liziocarpin - 0.03%; the amount of alkaloids in the seeds is more significant (D.N.Sahibov, 1957).

Heliotrope pubescent (Heliotropium lasiocarpum) is a disease that develops as a result of eating cereal products mixed with seeds.

The disease was first recorded in the 30s of the 20th century. In Central Asia (sheep mortality

was observed up to 20-30%). Poisoning has also been reported as a result of eating bread and porridge made from grains mixed with heliotrope seeds.

In 1945, research conducted by H.H. Zener showed that grain used in the feed of diseased animals contained a mixture of heliotrope seeds. The ground part (and seeds) of the plant contain heliothrine and lasiocarpine alkaloids, discovered by G. P. Menshikov in 1932-1934, which seriously damage the liver parenchyma and vessels of the animal. Liver damage is associated with decreased protein synthesis, increased hepatic breakdown, decreased glycogen, and concomitant increased mobilization of fat from hepatic depots, followed by the development of moderate fatty liver. It is characterized by a decrease in lipolytic enzymes and gas exchange in the liver.

Etiology. Intoxication is observed in pigs, less fattened cattle, sheep and chickens, as a result of feeding with grain feed containing up to 5% and more heliotrope seeds. Poisoning occurs as a result of eating the vegetative parts of the plant in the budding phase of the black sheep in the pasture.

Pathogenesis. The onset of heliotrope poisoning is the alkaloids heliothrine and lysiocarpine, which are present in the seeds from 0.02% to 3% or more, and to a lesser extent in the vegetative parts of the plant, which are mainly neurohepatotropic.

Clinical signs. At the beginning of the disease in cattle, refusal of food, general weakness, lethargy, yellowing of mucous membranes, clay-colored faecal masses are noted. On the 8-9th day of the disease, the weakness of the heart is accompanied by swelling of the subcutaneous tissue. Visible mucous membranes are hyperemic, with bleeding. At the beginning of the disease, pigs are lethargic, lie down for a long time, have poor or no appetite, their feces are dark in color and have an unpleasant smell.

In the acute period of the disease, depression increases, reaction to the environment is weakened, pain sensitivity decreases, vomiting is observed, and the animal falls down when trying to get up. From time to time, contraction of individual muscles of the body is noted. Animals die with continuous clonic-tonic convulsions, swimming movements of the legs.

At the beginning of intoxication in sheep, salivation, vomiting and pain in the liver are observed. On the 5-7th day of intoxication, painful urination occurs, urine mixed with blood.

In acute intoxication of birds, there is a lot of bleeding in the ears, skin of the abdomen and under the mucous membranes. Feces are liquid, with a mixture of blood. Death occurs on the 2-10th day of the disease.

In chronic intoxication, general weakness, abdominal distension, fatigue and death are noted.

Pathanatomical changes. Rigor mortis is soft, noncoagulable, and visible mucous membranes are pale and icteric. Pale yellow, lemon-yellow fluid with an unpleasant odor appears in the abdominal cavity.

Muscles are light yellow or strong yellow. The liver is enlarged, plethoric, yellow or yellow-brown in color, chronically shrunken and dense to the touch (atrophic cirrhosis). In the acute period of poisoning in pigs, ulcers are found on the mucous membranes of the small intestine.

Diagnosis. It is based on characteristic clinical signs, anamnesis data (hepatitis with ascites) and the results of laboratory analysis of food.

Treatment. Feed and pasture should be changed. Poisoned animals are injected intravenously with 150-200 ml of 40% glucose solution for large animals, 100-150 ml for small animals, as well as 75-100 ml of 10% solution of hexamethylenetetramine, 500-1000 ml of hemodesis, repeated. 10-12 hours 15-30 ml of campolon or 10-15 ml of hepalon are injected into the muscle. The use of vitamins - retinol, tocopherol and calciferol is indicated.

Prevention. In order to eliminate heliotrope, weeding is carried out twice before flowering and fruiting of cultivated fields, especially grain crops with spikes, and deep plowing in autumn [3,4,6].

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