

Epidemic Dropsy

Adulterant

➤ Seeds of *Argemone mexicana* or prickly poppy

Adulteration of mustard oil with argemone oil

Argemone seeds may also get accidentally mixed with mustard seeds while harvesting

Causative agent

Toxin named sanguinarine is present in argemone oil

It is absorbed from the gut into the blood circulation

It interferes with carbohydrate metabolism and oxidation of pyruvic acid which gets accumulated in blood

Pathophysiologic changes

➤ Dilatation, engorgement, and increased permeability of capillaries

➤ Lowered blood viscosity, increased hydrostatic pressure, hyperdynamic circulatory state and toxic vasculitis

Leading to transudation of fluid into skin and subcutaneous tissue, resulting in edema in:

Ciliary body and uveal tract of the eyes causing glaucoma

Myocardium resulting in cardiac failure

Kidneys resulting in renal failure

Body cavities causing pleural, pericardial, peritoneal effusion

Clinical Features

Sudden non-inflammatory, bilateral pitting pedal edema

Associated with abdominal pain, diarrhea

Liver enlargement with or without jaundice

Glaucoma can lead to optic atrophy and blindness

Followed by dyspnea, cardiac failure and death

Mortality rate varies between 5% and 50%

Detection of Argemone Oil

Nitric acid test

- Brown or orange red color appears on adding nitric acid to a sample of suspected oil in a test tube
- This indicates presence of argemone oil of more than 0.25%

Ferric chloride test

- Orange red color appears on addition of ferric chloride ➤ This is a highly specific test

Paper chromatography test

Highly sensitive and specific test

- It can detect argemone oil at a concentration of 0.0001%

Spectrofluorophotometric method using silica gel G

Serum and urine of the affected person are tested for presence of sanguinarine

Prevention and Control

Removal of argemone weeds growing among mustard plants to prevent accidental poisoning

Strict enforcement of Food Safety and Standards Act to prevent adulteration

All packets of mustard oil should show a label 'Argemone Free'

Consumption of unsealed oil should be prohibited

Prohibition of use of mustard oil in highly prevalent areas

