EC VETERINARY SCIENCE
Perspective

Copper and its Effect on Animal Health

Mahmoud Atrees*

Quarantine Department, Cairo University, UAE

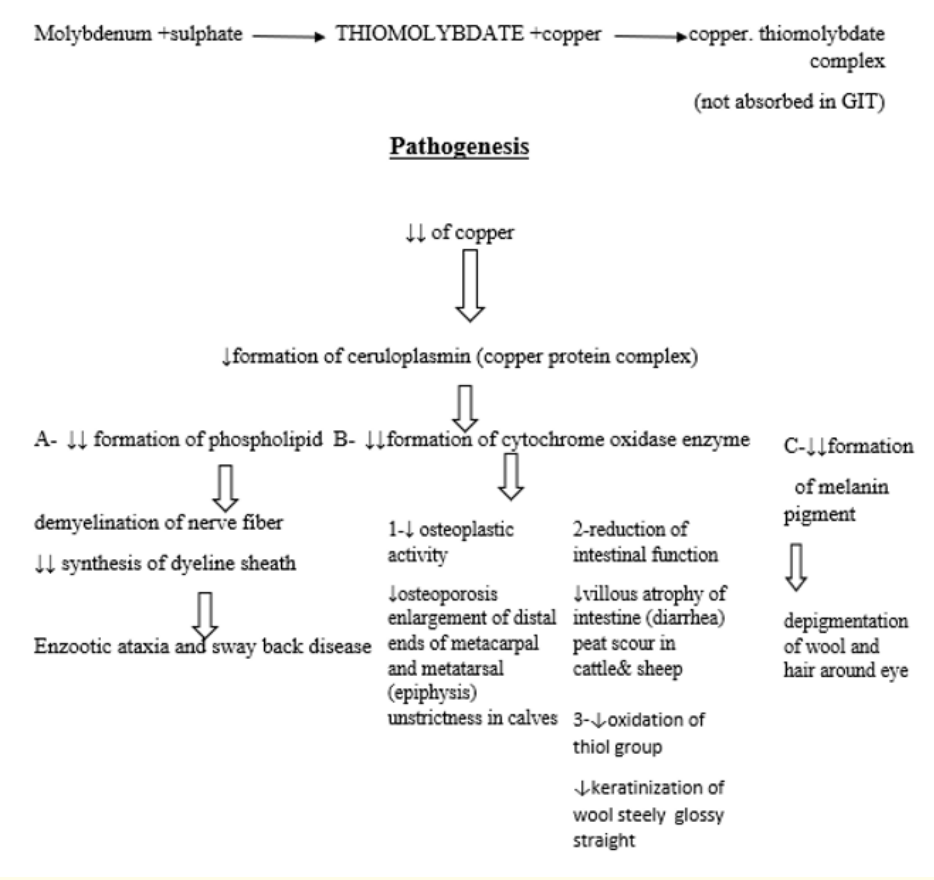
***Corresponding Author:** Mahmoud Atrees, Quarantine Department, Cairo University, UAE.

Received: November 01, 2021; **Published:** December 31, 2021

Copper:

- Is an essential trace element for animals needed for body, bone and wool growth, pigmentation, healthy nerve fibers and white blood cell function.

Causes of deficiency



A- Primary causes	B- Secondary causes
Inadequate supply of copper in ration.	Increase dietary intake of zinc molybdenum and Sulphur.
Feeding on forage and crops grown in copper deficient soil.	Liver disease decreases hepatic copper level.

Sway back disease:

- Just after birth.
- Decrease copper in pregnancy period.
- Incoordination of hind limbs.
- Knuckling and excessive flexion of joint.
- Hind quarter affected leading.
- To dragging himself.

Enzootic ataxia

In older suckling's ↓copper in suckling period born dead or suffering from ataxia, incoordination blindness.

Unthriftiness of calves

Signs:

- Loss of body weight and emaciation (unthriftiness).
- Enlargement of distal ends of metacarpal and metatarsal bones which is Painful and leading to lameness. Falling disease in cattle Acute heart failure Sudden death within 24 hrs. Falling down, raising up head with bellowing, struggling.

Peat scour in cattle and sheep

- Persistent diarrhea without effort without tenesmus.
- Watery yellow green to black faces which non offensive.
- Appetite is good.
- Depigmentation of black hair to gray hair specially around the eyes.

Diagnosis

- Case history.
- Clinical signs.

- 3-lab diagnosis:
    - Estimation of copper level in blood, soil and liver.
    - Estimation of ceruloplasmin level lead to decrease.
    - Estimation of liver cytochrome oxidase enzyme lead to decrease.
    - Estimation of monoamine oxidase level lead to decrease.

Control of copper deficiency

- Oral dosing with copper sulphate to susceptible lambs and calves.
- Drenches and drinking water:
    - Copper sulphate can be supplied through drinking water, but the dose rates cannot be controlled so they are not generally recommended.
    - Drenches only have a brief effect and are not recommended for treating copper deficiencies.
- Multi-mineral supplements (salt blocks and licks): Multi-mineral supplements are available in a loose granular or block form and are useful when individual animal treatment is impractical. Loose minerals are preferred and should be put in a covered feeder to keep rain out so they do not cake and become hard. While blocks and licks are a very practical supplement, some animals may fail to lick the block which reduces its efficacy or they may consume too much and risk toxicity. Recommended concentrations are 0.5 - 1.9% copper sulphate for cattle and 0.25 - 0.5% for sheep.

Control

- Drenches and drinking water:
    - Copper sulphate can be supplied through drinking water, but the dose rates cannot be controlled so they are not generally recommended.
    - Drenches only have a brief effect and are not recommended for treating copper deficiencies.
- Ruminal boluses:
    - Copper can be given via slow-release intraruminal boluses, often combined with selenium and cobalt. These last up to three years in sheep and one year in cattle.

Treatment

- Oral dosing of copper sulphate.
- 8 gm for cattle weekly for 3 - 5 weeks.
- 4 gm for calf weekly for 3 - 5 weeks.

- 2 gm for ewes weekly for 3 - 5 weeks.
- 1 gm for lams weekly for 3 - 5 weeks.
- Subcutaneous injection of copper glycinate one injection.
- Cattle→ 400 mg.
- Calf → 50 mg.
- Ewe → 150 mg.
- Lamb → 25 mg.
- Mineral mix containing 3 - 5% copper sulphate as food supplement in rate of 1% total ration (1 gm/kg feed).

Volume 7 Issue 1 January 2022