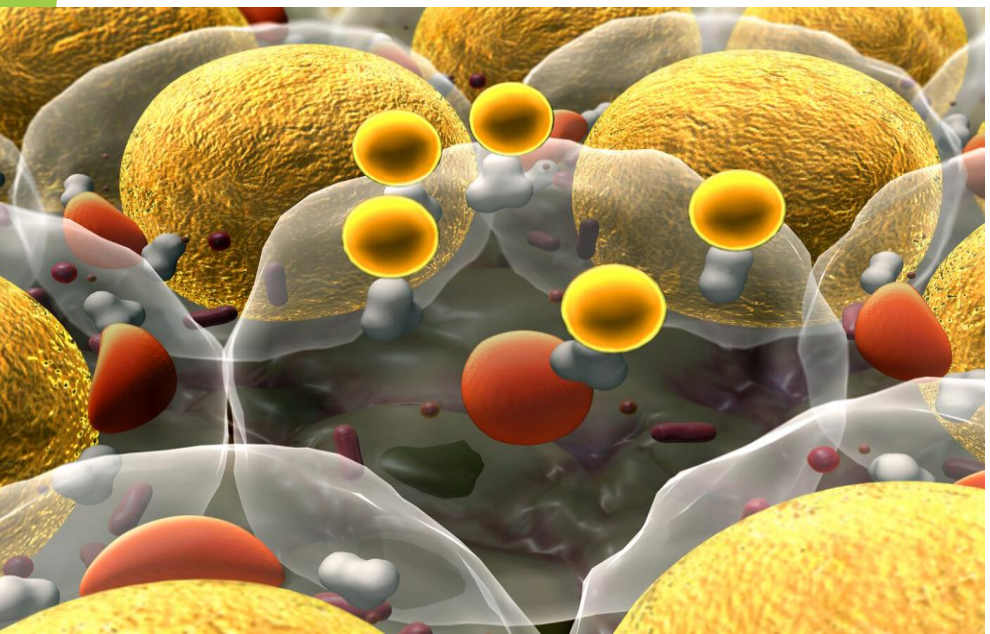
Meat Test
(Abnormal Color of Fat)



By

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Normal color

Carotenoids Carotenoids are yellow, orange, and red organic pigments that are produced by plants and algae, as well as several bacteria, archaea, and fungi, a group of hydrocarbons which cause the yellow colouration of fat .when they are deposited in the adipose tissue of mammals. &Carotene is the main carotenoid associated with yellow fat in cattle. Excessively pigmented carcasses are not desirable and are downgraded or rejected from domestic and overseas markets. To reduce the incidence of yellow coloured carcasses, cattle are fed a high grain diet which is poor in carotenoid content. However, there are breed differences in the deposition of B-carotene, and consequently, different breeds require various lengths of time on a grain diet to reduce the yellow fat colour.

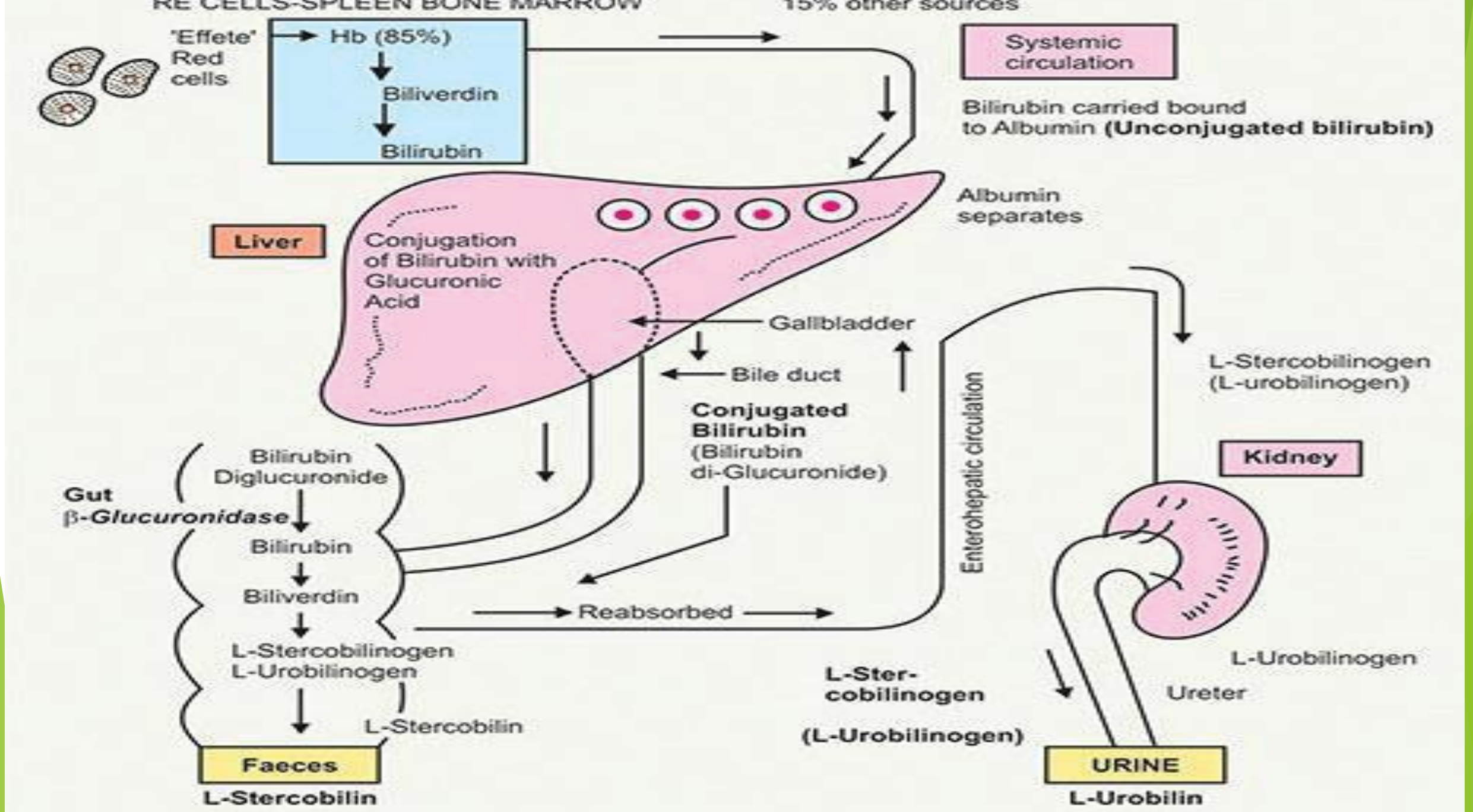

Healthians
JAUNDICE

Abnormal Color

Icterus(Jaundice)

Icterus is the result of an abnormal accumulation of bile pigment, bilirubin, or of haemoglobin in the blood. Yellow pigmentation is observed in the skin, internal organs ,sclerae (the white of the eye), tendons, cartilage, arteries, joint surfaces etc. Icterus is a clinical sign of a damaged liver or bile duct malfunction. Jaundice is divided into three main categories:-

1. Prehepatic jaundice (haemolytic icterus)
2. Hepatic jaundice (toxic icterus)
3. Post hepatic jaundice (obstructive icterus)


RE CELLS-SPLEEN BONE MARROW
15% other sources
'Effete' Red cells
Hb (85%)
Biliverdin
Bilirubin
Systemic circulation
Bilirubin carried bound to Albumin (Unconjugated bilirubin)
Albumin separates
Liver
Conjugation of Bilirubin with Glucuronic Acid
Gallbladder
Bile duct
Conjugated Bilirubin (Bilirubin di-Glucuronide)
Enterohepatic circulation
L-Stercobilinogen (L-urobilinogen)
Kidney
Bilirubin Diglucuronide
Gut
β-Glucuronidase
Bilirubin
Biliverdin
Reabsorbed
L-Stercobilinogen
L-Urobilinogen
L-Stercobilin
Faeces
L-Stercobilin
L-Ster-cobilinogen
(L-Urobilinogen)
L-Urobilinogen
Ureter
URINE
L-Urobilin

Methods for detection of jaundice :-

1. Antemortem inspection :-

Considered as one of the most important method for detection of jaundice. During antemortem inspection we can see there is a yellowish of mucous membranes and sclera (the white of the eye).

2. Postmortem inspection :- The most important tissues for detection of jaundice are :-

a. Fat :- It is useful to examine fat in order to detect the presence of jaundice in sheep and buffalo, but it is unuseful in cattle.

b. Tendons, connective tissues and the joint surfaces.

c. Serous membranes.

d. Spinal cord and meninges

e. Lungs, liver, kidneys and the sclerotic membrane of eye.

f. Endothelium of arteries as femoral, Brachial and iliac arteries and large nerve trunks.

****Note :-

The degree of yellowness in the fat of cattle carcass differ according to :-

1- Breed :- As the yellow color appeared more dark in the fat of Guernsey and Jersey breeds cattle carcasses comparable with other breeds.

2- Age of animal :- Fat is more yellowish in the carcasses of aged cattle.

3- Type of feed :- Feed also affect on the color of fat in cattle carcasses as in case of feeding cattle on carrot, green grass, corn, and others.

In case of jaundice:- The yellow color will be found in fats and other tissues.

In case of feeding cattle on carrot, green grass, corn, and others:- Yellow color will be found only in fats


Yellow (Jaundice)
Yellow (Caroten)
Normal White

Judgment :-

- In case of jaundice the carcass is unfit for human consumption due to unacceptable taste and odor in addition to the color.
- Less severe cases are kept in the chiller for 24 hours. Upon re-examination, the carcass may be approved or condemned depending on the absence or presence of pigment in the tissue.
- If the obstructive jaundice disappears after 24 hours, the carcass and viscera can be passed for human food.

Test for detection fat color:-

1—Rapid phase test

AIM

To different between physiological yellow coloration (carotene)and pathological yellow coloration (bile pigment)

PROCEDURE

In aclean test tube put 5g of chopped fat ,5ml of NaOH5 %5 .then shake well and heat on flame till complet melting of fat (about 2 min ,cool under tape water till comfortable warm to hand .add 5 ml of diethyl ether and shake well and leave to stand till separation of two layers.

Result

1-if the upper layer is yellow and lower layer is yellow or greenish it is considered icteric cow

2--if the upper layer is yellow and lower layer is colorless it is normal cow.

3-Both layers (upper and lower)are white in color it is normal buffalo.

4- if the upper layer is white and lower layer is yellow or greenish it is icteric buffalo.

2-Martin test

Aim

To differentiate between physiological yellow coloration (carotene)and pathological yellow coloration (bile pigment)

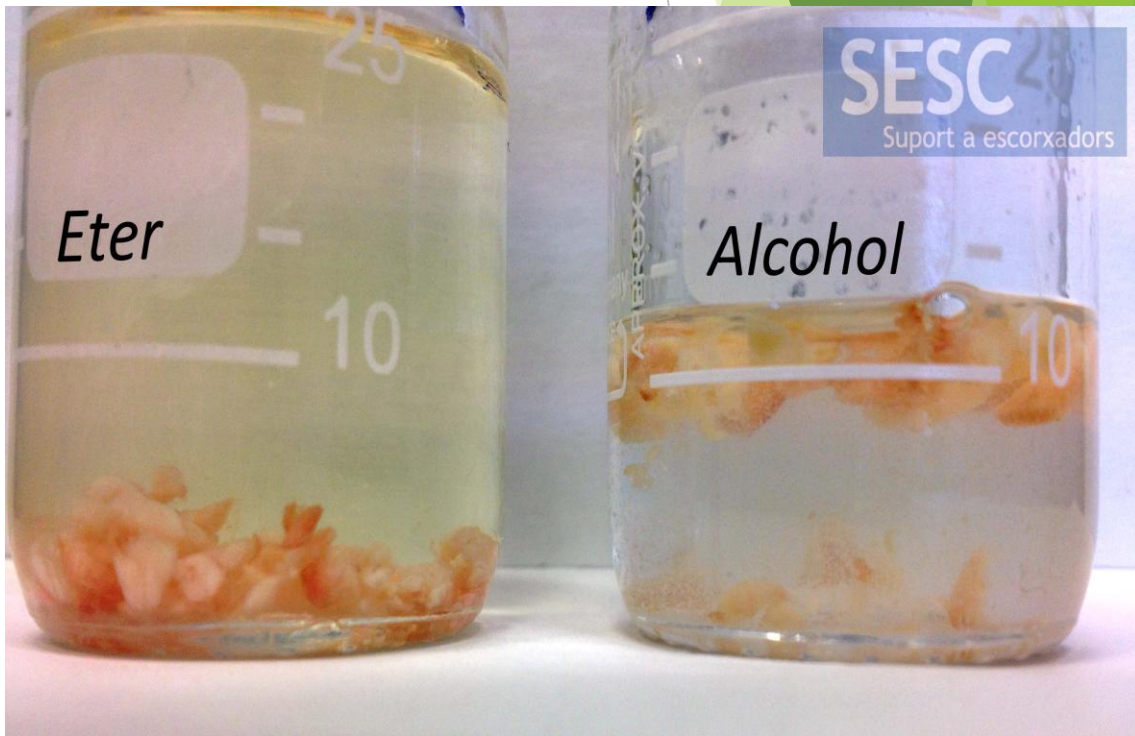
Procedure

2 g of fat or other C.T .substances are cut in to small picese to which is added 20 ml. of 50% alcohol,shake well then filter .to 8 ml of the filtrate add 10-20 drops of conc. Sulphuric acid

RESULT

Yellow,brown green or green color appears if bilirubin is present which is transferred to blue color by further addition of conc,sulphuric acid and boiling due to further oxidation by oxygen in sulphuric acid

3-The ether-alcohol test was performed with adipose tissue: it consists in depositing adipose tissue fragments of the affected carcass in two containers, one with ether and another with alcohol, then the mixture is stirred and the result read in 1-2 hours. Carotenoids are soluble in ether and will stain the liquid yellow, on the other hand bile pigments are soluble in alcohol and will stain the other vial yellow.
The lack of liver lesions and the positive reaction to ether suggested that this was a case of yellow coloration due to accumulation of carotenoid pigments




Thank
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