



FOOD SAFETY AND STANDARDS
AUTHORITY OF INDIA

Inspiring Trust, Assuring Safe & Nutritious Food
Ministry of Health and Family Welfare, Government of India



**Eat Right
India**
सही भोजन. बेहतर जीवन.

FOOD ADULTERATION KEY RING



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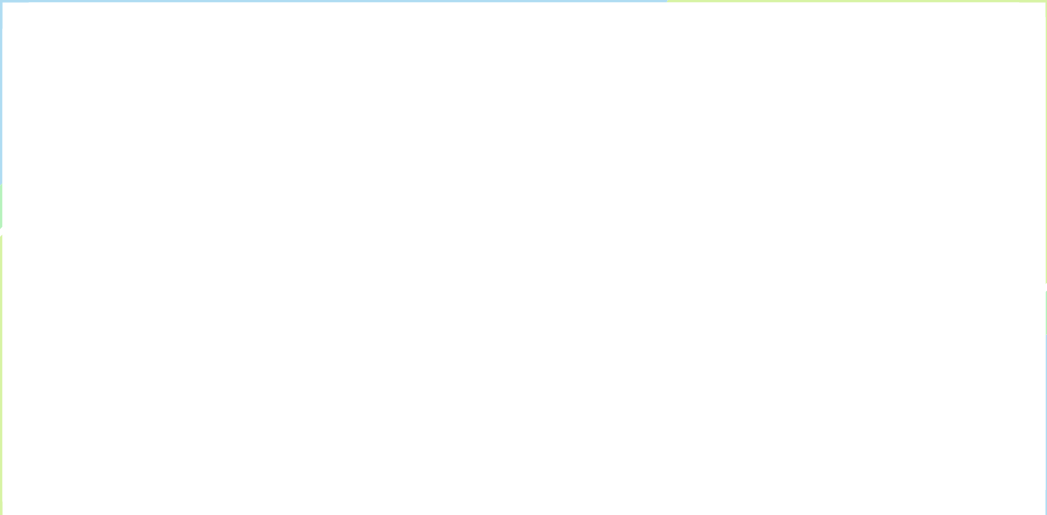
**Eat Right
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**FIT
INDIA**



**POSHAN
Abhiyaan**
Fit to Live, Healthy, Stronger to Achieve
सही पोषण - दृढ़ संकल्प



TEST 1

Detection of water in milk

Testing method:

- 1 Put a drop of milk on a polished slanting surface.
- 2 Pure milk either stays or flows slowly leaving a white trail behind.
- 3 Milk adulterated with water will flow immediately without leaving a mark.

TEST 1

Detection of water in milk



Pure milk



Adulterated milk

TEST 2

Detection of detergent in milk

Testing method:

- 1 Take 5 to 10ml of sample with an equal amount of water.
- 2 Shake the contents thoroughly.
- 3 If milk is adulterated with detergent, it forms dense lather.
- 4 Pure milk will form very thin foam layer due to agitation..

TEST 2

Detection of detergent in milk



Pure milk



Adulterated milk

TEST 3

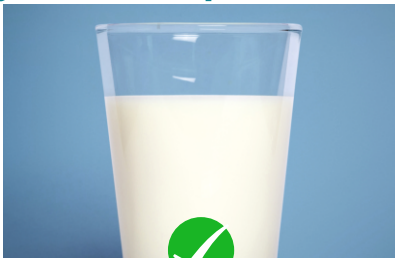
Detection of starch in milk and milk products (khoya, chenna, paneer)

Testing method:

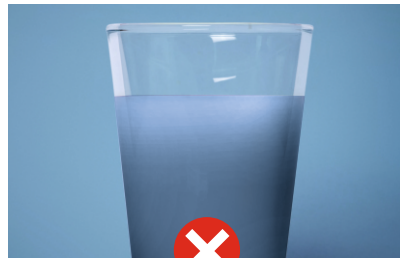
- 1 Boil 2-3 ml of sample with 5ml of water.
- 2 Cool and add 2-3 drops of tincture of iodine.
- 3 Formation of blue colour indicates the presence of starch.
(In the case of milk, addition of water and boiling is not required)

TEST 3

Detection of starch in milk and milk products (khoya, chenna, paneer)



Pure milk



Adulterated milk

TEST 4

Detection of mashed potatoes, sweet potatoes and other starches in ghee/butter

Testing method:

- 1 Take $\frac{1}{2}$ teaspoon of ghee/butter in a transparent glass bowl.
- 2 Add 2-3 drops of tincture of iodine.
- 3 Formation of blue colour indicates the presence of mashed potatoes, sweet potatoes and other starches.

TEST 4

Detection of mashed potatoes, sweet potatoes and other starches in ghee/butter



Pure



Adulterated

TEST 5

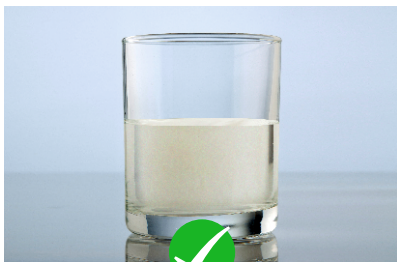
Detection of other oils in coconut oil

Testing method:

- 1 Take coconut oil in a transparent glass.
- 2 Place this glass in refrigerator for 30 minutes. (Do not keep in the freezer)
- 3 After refrigeration, coconut oil solidifies.
- 4 If coconut oil is adulterated, then other oils remain as a separate layer.

TEST 5

Detection of other oils in coconut oil



Pure



Adulterated

TEST 6

Detection of sugar solution in honey

Testing method - 1:

- 1 Take a transparent glass of water.
- 2 Add a drop of honey to the glass.
- 3 Pure honey will not disperse in water.
- 4 If the drop of honey disperses in water, it indicates the presence of added sugar.

Testing method - 2:

- 1 Take a cotton wick dipped in a pure honey and light with a match stick.
- 2 Pure honey will burn.
- 3 If adulterated, the presence of water will not allow the honey to burn if it does; it will produce a cracking sound.

TEST 6

Detection of sugar solution in honey



Pure



Adulterated

TEST 7

Detection of chalk powder in sugar/pithi sugar/jaggery

Testing method:

- 1 Take a transparent glass of water.
- 2 Dissolve 10g of sample in water.
- 3 If sugar/pithi sugar/jaggery is mixed with chalk, the adulterant will settle down at the bottom.

TEST 7

Detection of chalk powder in sugar/pithi sugar/jaggery



Pure



Adulterated

TEST 8

Detection of extraneous matter (dust, pebble, stone, straw, weed seeds, damaged grain, weeviled grain, insects, rodent hair and excreta) in food grains**Testing method:**

- 1 Take small quantity of sample in a glass plate.
- 2 Examine the impurities visually.
- 3 Pure food grains will not have any such impurities.
- 4 Impurities are observed visually in adulterated food grains.

TEST 8

Detection of extraneous matter (dust, pebble, stone, straw, weed seeds, damaged grain, weeviled grain, insects, rodent hair and excreta) in food grains**Pure****Adulterated**

TEST 9

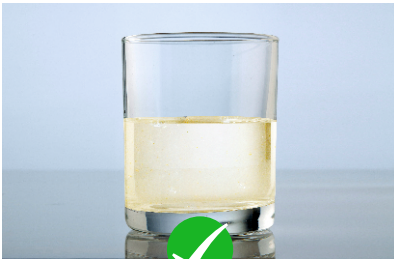
Detection of excess bran in wheat flour

Testing method:

- 1 Take a transparent glass of water.
- 2 Sprinkle a spoon of wheat flour on the surface of water.
- 3 Pure wheat flour will not show excess bran on water surface.
- 4 Adulterated wheat flour shows excess bran floating on water surface.

TEST 9

Detection of excess bran in wheat flour



Pure wheat flour



Excess bran in wheat flour

TEST 10

Detection of khesari dal in dal whole and split

Testing method:

- 1 Take small quantity of dal whole or split in a glass plate.
- 2 Examine the impurities visually.
- 3 Khesari dal which has edged type appearance showing a slant on one side and square in appearance can be separated out by close examination.
- 4 Pure dal will not have any such impurities.

TEST 10

Detection of khesari dal in dal whole and split



Pure dal



Khesari dal

TEST 11

Detection of added colour in food grains

Testing method:

- 1 Take a transparent glass of water.
- 2 Add 2 teaspoons of food grains and mix thoroughly.
- 3 Pure food grains will not leave any colour.
- 4 Adulterated food grains leaves colour immediately in water.

TEST 11

Detection of added colour in food grains

**Pure****Adulterated**

TEST 12

Detection of iron filings in atta/maida/suji (rawa)

Testing method:

- 1 Take small quantity of sample in a glass plate.
- 2 Move the magnet through the flour.
- 3 Pure flour will not show any iron filings on the magnet.
- 4 If flour is adulterated, then iron filings will be seen on the magnet.

TEST 12

Detection of iron filings in atta/maida/suji (rawa)



Pure



Adulterated

TEST 13

Detection of turmeric in sella rice

Testing method:

- 1 Take a tea spoon of rice in a glass plate.
- 2 Sprinkle a small amount of soaked lime (commonly known as chuna which is used in pan) on the rice grains.
- 3 Pure grains will not form red colour.
- 4 Adulterated grains will form red colour.

TEST 13

Detection of turmeric in sella rice



Pure



Adulterated

TEST 14

Detection of artificial/added colour in ragi

Testing method:

- 1 Take cotton ball soaked in water or vegetable oil. (conduct the test separately)
- 2 Rub the outer surface of the ragi.
- 3 If cotton absorbs colour, then it indicates the adulteration of ragi with added colour on the outer surface.

TEST 14

Detection of artificial/added colour in ragi



Pure



Adulterated

TEST 15

Detection of papaya seeds in black pepper

Testing method:

- 1 Add some amount of black pepper to a glass of water.
- 2 Pure black pepper settles at the bottom.
- 3 In the adulterated black pepper, papaya seeds float on the surface of water.

TEST 15

Detection of papaya seeds in black pepper



Black pepper



Papaya seeds

TEST 16

Detection of artificial/water soluble synthetic colours in chilli powder

Testing method:

- 1 Sprinkle chilli powder on the surface of water taken in a glass tumbler.
- 2 The artificial colourants will immediately start descending in colour streaks.

TEST 16

Detection of artificial/water soluble synthetic colours in chilli powder



Pure



Adulterated

TEST 17

Detection of cassia bark in cinnamon

Testing method:

- 1 Take small quantity of cinnamon in a glass plate.
- 2 If adulterated, on close visual examination, cassia bark that comprises of several layers in between the rough outer and inner most smooth layers can be differentiated from cinnamon.
- 3 Cinnamon barks are very thin that can be rolled around a pencil or pen. It has a distinct smell.

TEST 17

Detection of cassia bark in cinnamon



Cinnamon



Cassia

TEST 18

Detection of argemone seeds in mustard seeds

Testing method:

- 1 Take small quantity of mustard seeds in a glass plate.
- 2 Examine visually for the argemone seeds.
- 3 Mustard seeds have a smooth surface and when pressed, inside it is yellow in colour.
- 4 Argemone seeds have grainy, rough surface and are black in colour. When pressed, it is white in colour from inside.

TEST 18

Detection of argemone seeds in mustard seeds



Mustard seeds



Argemone seeds

TEST 19

Detection of artificial/added colour in turmeric whole**Testing method:**

- 1 Add small quantity of turmeric whole in a transparent glass of water.
- 2 Pure turmeric will not leave any colour.
- 3 Adulterated turmeric appears to be bright in colour and leaves colour immediately in water.

TEST 19

Detection of artificial/added colour in turmeric whole**Pure****Adulterated**

TEST 20

Detection of artificial colour in turmeric powder

Testing method:

- 1 Add a teaspoon of turmeric powder in a glass of water.
- 2 Natural turmeric powder leaves light yellow colour while settling down.
- 3 Adulterated turmeric powder will leave a strong yellow colour in water while settling down.

TEST 20

Detection of artificial colour in turmeric powder



Pure



Adulterated

TEST 21

Detection of sawdust and powdered bran in powdered spices

Testing method:

- 1 Sprinkle powdered spices on the water surface.
- 2 Pure spices will not leave any saw dust/powdered bran on the surface of water.
- 3 If spices are adulterated, saw dust/powdered bran will float on the surface.

TEST 21

Detection of sawdust and powdered bran in powdered spices



Pure



Adulterated

TEST 22

Detection of extraneous matter (dust, pebble, stone, straw, weed seeds, damaged grain, weeviled grain, insects, rodent hair and excreta) in whole spices

Testing method:

- 1 Take small quantity of sample in a glass plate.
- 2 Examine the impurities visually.
- 3 Pure whole spices will not have any impurities.
- 4 Impurities are observed visually in adulterated whole spices.

TEST 22

Detection of extraneous matter (dust, pebble, stone, straw, weed seeds, damaged grain, weeviled grain, insects, rodent hair and excreta) in whole spices



Pure



Adulterated

TEST 23

Detection of fennel seeds in cumin seeds

Testing method:

- 1 Take small quantity of cumin seeds in a glass plate.
- 2 Examine visually for the fennel seeds.
- 3 Fennel seeds can be separated out by close examination.

TEST 23

Detection of fennel seeds in cumin seeds



Fennel seeds



Cumin seeds

TEST 24

Detection of artificial/added colour in green vegetables like bitter melon, green chilli and others.

Testing method:

- 1 Take a cotton piece soaked in water or vegetable oil. (conduct the test separately)
- 2 Rub the outer green surface of a small part of green vegetable/chilli.
- 3 If the cotton turns green, then it is adulterated with artificial/added colour.

TEST 24

Detection of artificial/added colour in green vegetables like bitter melon, green chilli and others.



Pure



Adulterated

TEST 25

Detection of artificial colour on green peas.**Testing method:**

- 1 Take little amount of green peas in a transparent glass.
- 2 Add water to it and mix well.
- 3 Let it stand for half an hour.
- 4 Clear separation of colour in water indicates adulteration.

TEST 25

Detection of artificial colour on green peas.

Pure



Adulterated

TEST 26

Detection of coloured dried tendrils of maize cob in saffron

Testing method:

- 1 Genuine saffron will not break easily like artificial. Artificial saffron is prepared by soaking maize cob in sugar and colouring it with coal tar.
- 2 Take a transparent glass of water and add small quantity of saffron.
- 3 If saffron is adulterated, the artificial colour dissolves in water rapidly. A bit of pure saffron when allowed to dissolve in water will continue to give its saffron colour so long as it lasts.

TEST 26

Detection of coloured dried tendrils of maize cob in saffron

**Saffron****Coloured tendrils**

TEST 27

Detection of white powder in iodised salt

Testing method:

- 1 Stir $\frac{1}{4}$ teaspoon of sample of salt in a glass of water.
- 2 Pure salt dissolves completely and gives a clear solution or gives slightly turbid solution due to the presence of permitted anticaking agent in the salt.
- 3 If salt is adulterated, solution turns dense white turbid in the presence of chalk powder and other insoluble impurities will settle down at the bottom.

TEST 27

Detection of white powder in iodised salt



Pure



Adulterated

TEST 28

Differentiation of common salt and iodised salt

Testing method:

- 1 Cut a piece of potato, add salt and wait for a minute.
- 2 Add two drops of lemon juice.
- 3 If it is iodised salt, blue colour will develop.
- 4 In the case of common salt, there will be no blue colour.

TEST 28

Differentiation of common salt and iodised salt



Iodised salt



Common salt

TEST 29

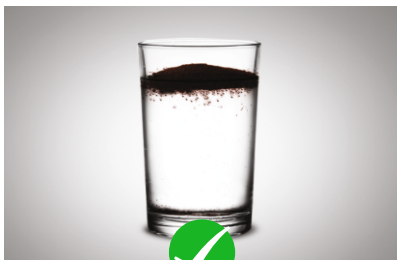
Detection of clay in coffee powder

Testing method:

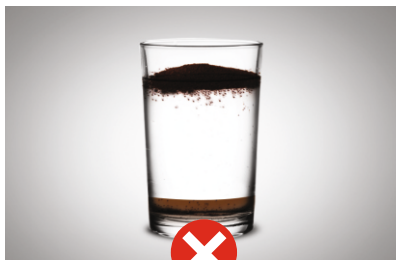
- 1 Add $\frac{1}{2}$ teaspoon of coffee powder in a transparent glass of water.
- 2 Stir for a minute and keep it aside for 5 minutes. Observe the glass at the bottom.
- 3 Pure coffee powder will not leave any clay particles at the bottom.
- 4 If coffee powder is adulterated, clay particles will settle at the bottom.

TEST 29

Detection of clay in coffee powder



Pure



Adulterated

TEST 30

Detection of colour in supari pan masala

Testing method:

- 1 Add small amount of supari pan masala in a glass of water.
- 2 Pure supari masala will not leave any colour in water.
- 3 If adulterated, then colour dissolves in water immediately.

TEST 30

Detection of colour in supari pan masala

**Pure****Adulterated**

TEST 31

Detection of exhausted tea in tea leaves

Testing method:

- 1 Take a filter paper and spread few tea leaves.
- 2 Sprinkle with water to wet the filter paper.
- 3 Wash the filter paper under tap water and observe the stains against light.
- 4 Pure tea leaves will not stain the filter paper.
- 5 If coal tar is present, it will immediately stain the filter paper.

TEST 31

Detection of exhausted tea in tea leaves



Pure



Adulterated

TEST 32

Detection of iron filings in tea leaves

Testing method:

- 1 Take small quantity of tea leaves in a glass plate.
- 2 Move the magnet through the tea leaves.
- 3 Pure tea leaves will not show any iron filings on the magnet.
- 4 If adulterated, then iron filings will be seen on the magnet.

TEST 32

Detection of iron filings in tea leaves



Pure



Adulterated

TEST 33

Detection of artificial/added colour in sweet potato

Testing method:

- 1 Take a cotton ball soaked in water or vegetable oil. (conduct the test separately)
- 2 Rub the outer red surface of the sweet potato.
- 3 If cotton absorbs colour, then it indicates the usage of artificial/added colouring in the outer surface of sweet potato.

TEST 33

Detection of artificial/added colour in sweet potato



Pure



Adulterated

BACK COVER



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BACK COVER INSIDE