

## Methanol poisoning

### Why in news?

Recently around 20 people died after consuming spurious liquor in Villupuram and Chengalpattu districts of Tamil Nadu.

### What is the difference between liquor and spurious liquor?

- **Liquor** - It is an *alcoholic beverage made by distillation* rather than by fermentation.
- The alcohol content varies from the *5% or so (beer) to 12% or so (wine) to 40% or so (distilled spirits)* by volume.
- The alcohol used is almost always **ethanol ( $C_2H_5OH$ )**, a psychoactive drug that, in low doses, reduces the level of neurotransmission in the body, leading to intoxicating effects.

Beverage	Alcohol content
Beer	5% or so
Wine	12% or so
Distilled spirits	40% or so

- **Spurious alcohol** - It is an illicit liquor made up by *improper distillation*.
- It is a liquid mixture containing **methanol ( $CH_3OH$ ) as well ethanol**.

### What is methanol and how is it regulated?

- **Methanol** - It is a colorless, fairly volatile, flammable liquid with a faintly sweet pungent odor like that of ethyl alcohol.
- It is primarily used as an industrial solvent and as antifreeze.
- Methanol is also used as an alternative motor fuel and as an ingredient in paint and varnish removers.
- **Regulations** - The *Food Safety and Standards (Alcoholic Beverages) Regulations 2018* stipulate the maximum permissible quantity of methanol in different liquors.

Liquor	Maximum permissible quantity of methanol (grams per 100 litre)
Coconut fenny	Absent
Country liquor	50
Pot-distilled spirits	300

- *Schedule I of the Manufacture, Storage and Import of Hazardous Chemical Rules 1989* includes methanol.
- *The Indian Standard IS 517* applies to how the quality of methanol is to be ascertained.
- Ministry of Chemicals and Fertilizers has notified *Quality Control Order* for the

**mandatory certification** for methanol that shall come into force on the 3rd August, 2023.

The human body contains minute quantities of methanol (**4.5 ppm** in the breath of healthy individuals) as a result of eating some fruits.

For an adult, **more than 0.1 ml** of pure methanol per kilogram of body-weight is dangerous.

### What is methanol poisoning?

- **Methanol poisoning** - The deadliness of spurious liquor arises from methanol due to its conversion into **formic acid**.
- The accumulation of formic acid over time leads to a baneful condition called **metabolic acidosis**.
- Acidosis can lead to **acidemia** when the blood's pH drops below its normal value of 7.35.
- Methanol-poisoning can cause blindness, cerebral edema, haemorrhage, and death.
- **Treatment** - There are 2 immediate ways to treat methanol poisoning.
  - To administer **ethanol of a pharmaceutical grade** by healthcare workers
  - To administer an antidote called **fomepizole** (that is present in WHO's list of essential medicines)

### Quick facts

#### WHO's Lists of Essential Medicines

- Essential medicines, as defined by the WHO, are the medicines that satisfy the priority health care needs of the population.
- These are the medications to which people should have access at all times in sufficient amounts and the prices should be at generally affordable levels.
- The lists are updated **every 2 years** by the **Expert Committee** on Selection and Use of Essential Medicines.
- The current versions, updated in 2021, are the 22nd Essential Medicines List (EML) and the 8th Essential Medicines List for Children (EMLc).

### References

1. [The Hindu | spurious liquor and methanol](#)
2. [WHO | WHO Model Lists of Essential Medicines](#)