Lab grown meats

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Why is in news? Making meat in the lab

The two recent reports in the Indian press about making meat in the lab: one in The Statesman on June 28, 2023 and the second one in The Hindu of July 9, 2023.

They both **focussed on the Indian efforts in making meat in the laboratory, rather than killing animals** in the farm or in specially constructed slaughter houses.

In fact, the making of meat in the laboratory has been **going on both in the U.S. and Europe**. The idea is not to kill the animal for flesh, but to save it and grow its meat in the laboratory.

On June 21, **two California-based companies were cleared to make and sell cell-cultivated chicken**, the 'official' name of **chicken meat that is grown in a laboratory for human consumption**. As a concept, it is being hailed by stakeholders as a **major step towards reducing carbon emissions associated with the food industry** worldwide.

Chicken is the second most widely consumed meat in the world, according to the **UN Food and Agriculture Organization** (FAO).

What is cell-cultivated meat?

Cultured meat also called **cell-based meat or cultivated meat** is genuine animal meat (including seafood and organ meats) that is **produced by cultivating animal cells directly**.

The livestock does not need to be killed in order to produce it. It **uses animal DNA to recreate in a lab** the taste and texture of meat.

To make cell-cultivated meat, isolate the cells that make up the meat (the meat that we consume), and put them in a setting where they have all the resources they need to grow and make more copies of themselves.

These resources are typically nutrients, fats, carbohydrates, amino acids, the right temperature, etc.

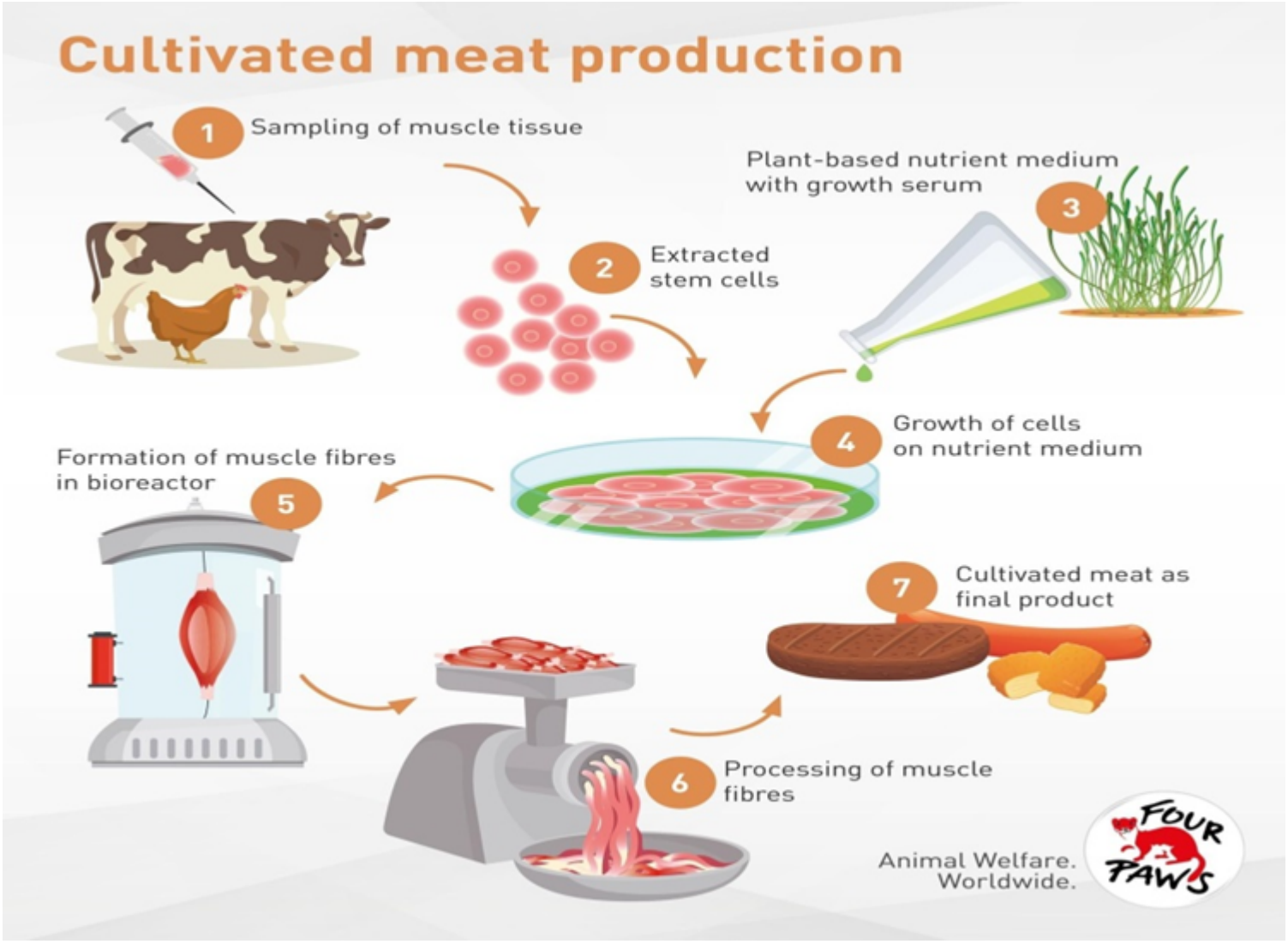
The 'setting' in which this process transpires is often a bioreactor (also known as a 'cultivator'), a sensor-fit device — like a container — that has been designed to support a particular biological environment.

Once there are enough of these cells, which takes around two to three weeks, they resemble a mass of minced meat. They are collected and processed with additives to improve texture.

The government funding for cultured meat businesses is considerable worldwide.

The governments of **Israel, Japan, and the Netherlands**, among others, have invested in clean meat businesses.

Furthermore, the regulatory bodies in nations like the US are deciding how to promote these products. These initiatives highlight how the clean meat industry has the ability to sustainably feed future generations.



Significance of cultured meat:

Reduce environmental impact - It could vastly reduce the environmental impact of global meat production in the future.

Reduce emissions - Emissions from conventional animal agriculture could be reduced.

Uses less water - It uses much less land and water than livestock.

Renewable energy - It can run on energy produced purely from renewable sources.

Prevent animal slaughter - Cultivated meat helps save animal slaughter.

Food accessibility - Provides food accessibility to the population living in under-developed and strife-torn areas.

High in nutrients - Lab-grown meat is high in protein, vitamins, and minerals and can be lower in fat and cholesterol than conventional animal meat.

Challenges:

The market is still dominated by conventional meat.

The cost of cell-cultivated meat is expected to remain high in the near future.

Agriculture and husbandry organisations are leading the battle against lab-grown meat, arguing that since it didn’t come from an animal, it isn’t actually meat.

For cultivation, researchers require high quality cells, a suitable growth-medium in which the cells can be cultured, plus other resources required to maintain the quality of the final product.