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Novel plant-based meat as a better replacement for traditional meat

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With the growing population, the need for food is increasing and the population consuming meat has drastically increased in recent years. To reduce animal slaughter, scientists are finding new ways to culture meat artificially that can act as an alternative to industrial animal farming. To match the taste and texture of the meat, improved technologies are being used to culture meat in vitro or by using plant-based products. To culture meat in vitro, self-reproducing cells are required making it an animal-based product; this method avoids the need to breed, raise, and slaughter huge numbers of animals. Conversely, plant-based meat has gained more popularity as a vegan source of protein. Plant-based substitutes can provide substantial benefits over cell-based meat (cultured meat) by appealing to those who enjoy meat but are concerned with environmental and animal welfare, and public health harms. Traditional plant-based meat substitutes that are available since a long time include simple derivatives from soybeans, such as tofu, tempeh, etc. However, novel plant-based meat acts as a near equivalent replacements for animal-based meat pertaining to taste, texture and nutrition. Its production includes three steps, namely protein isolation and functionalisation, formulation, and processing. Along with them, innovative technologies, such as shear cell technology, mycelium cultivation, 3D printing, and recombinant protein additives are being utilised to improve the organoleptic properties (appearance, aroma, flavour and texture). The plant-based proteins (e.g. soy, wheat and pea) utilised in plant-based meat provide total protein content that is almost identical to traditional meat. There is a high consumer acceptance for meat that is derived from plant products currently, therefore advances in agriculture technology and synthetic biology might enable the production of meatless products in the future with increased sensory attractiveness.

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