

Vegan Meats: The Plant Based Alternatives

Ms. B. Tulasi¹, Dr. Jessie Suneetha. W^{2*}, Dr. J. Hemantha Kumar², Dr. V. Chaitanya², Ms. K. Navya¹ and Dr. K. Ravi Kumar²

¹PGRC, PJTS Agricultural University, Rajendranagar, Hyderabad 500030

²Krishi Vigyan Kendra, PJTS Agricultural University, Wyrā 507165, Khammam Dt.

ARTICLE ID: 56

Introduction

Plant-based protein is tied to a number of positives for people and the planet. The swapping of meat for plant-based ones can reduce the intake of saturated fats and increase the fiber and vitamin content in diets. It can help to reduce risk for diabetes, cancer, heart diseases and other life style diseases. Consumers are growing interested in plant-based meat alternatives like the Impossible TM Burger and Beyond Burger that are received significant financial investments, media coverage and research attention. The market for plant-based meat is fast expanding and by 2026 can be worth more than \$30 billion.

The meat substitutes developed resemble the flavour and sensory experience of red meat, are promoted as having environmental and health benefits over red meat. While plant-based meat products differ in terms of ingredients, the new generation of alternatives are designed to match the sensory experience and macronutrient composition of meat by using plant proteins like soy, peas, potato, rice and wheat.

Vegan meat also known as faux, fake, mock, meat analogues or plant proteins are products that have texture, flavour or appearance similar to that of animal-based meat. They contain a variety of components including soya, textured vegetable protein and wheat gluten to name a few. There is a distinction to be made between “meatless” and “vegan meat. The word “meatless” can be used to describe a product that includes only trace amounts of animal components like as eggs, casein, whey or other animal-derived enzymes whereas vegan meat has no animal products in it.

Types of Plant-Based Meat Alternative: Today there are a growing number of plant-based meat alternatives that include seitan, jackfruit, soya-based products, mushroom, beans and legumes.

 **Seitan:** Seitan is a crucial wheat gluten-based plant-based meat alternative. Its savoury flavour and chewy texture make it a great addition to stir-fries, sandwiches,

stews and pasta dishes. It is a high-protein plant-based meat substitute in terms of nutrition. Iron, calcium, and potassium are usually present in tiny levels. It is available in the form of ready to use cubes, strips or thin deli slices.

- ✚ This product is not suitable for persons with celiac disease or non-celiac gluten sensitivity since it contains gluten.
- ✚ **Jackfruit:** The jackfruit is a huge tropical fruit that is native to Asia, Africa and parts of South America. It features a thick, green, rough rind with edible seeds with mushy and stringy inner flesh. The jackfruit flesh is frequently substituted for meat in recipes such as pulled pork due to its consistency and mild flavour. When compared to other plant-based meat alternatives, jackfruit is low in calories but lacks protein and fat. It does however contain some fibre and a minor amount of minerals like iron, potassium and calcium.
- ✚ **Soya based foods:** Soya is a legume that was one of the first plant-based meat substitutes. Soya based foods have a moderate flavour and a variable texture making them suitable for use in a variety of classic meat-based cuisines. The popular soya-based foods include:
 - **Soybeans:** Soybeans often known as edamame are a delicious addition to stir-fries or can be cooked and eaten as a snack.
 - **Tofu:** Tofu is a spongy cake produced from soy and water that can be squeezed, diced and fried. It can be crumbled and cooked with vegetables, added to stir-fries or salads, or sliced and added to sandwiches.
 - **Texturized Vegetable Protein (TVP):** TVP is a highly processed vegan meat substitute developed in the 1960's using soy flour which is a by-product of soya oil production with high-protein and low-fat content. The soya flour is extruded as nuggets and chunks. It can be purchased in dehydrated form and is more often found in processed and frozen vegetarian products.
 - **Tempeh:** This is a long-block fermented soybean product consumed in many of Asian countries.
- ✚ **Mushrooms:** Mushrooms make a great substitute for meat that are unprocessed and whole food as they naturally have a meaty flavour, rich in umami and type of savoury taste. Mushroom caps can be grilled or broiled in place of a burger or sliced and used

in stir-fries or tacos as they are low in calories and high in fiber, making them a good choice for people trying to lose weight but lack proteins.

✚ **Beans and Legumes:** Beans and legumes are affordable sources of plant-based protein that serve as hearty and filling meat substitutes that are wholesome and unprocessed food. These include chickpeas, black beans and lentils. Each bean has a slightly different flavor and can be used in variety of cuisines like black and pinto beans complement Mexican recipes, whereas chickpeas and cannellini beans gel well with Mediterranean flavors. Though beans are a good source of plant-based protein, they do not contain all essential amino acids on their own. However, they are high in fiber and a great vegetarian source of iron.

List of probable plant-based meat elements that contribute to critical nutrients:

Nutrients	Ingredients
Protein	Soybeans, hydrolyzed vegetable protein, mycoprotein, almonds, soy protein and pea protein
Fat and saturated fat	Sunflower oil, sunflower seeds, rice bran oil, coconut oil, flaxseed, cocoa butter, peanuts, vegetable oil and canola oil
Carbohydrates or sugar	Sweet potato, corn starch, potato starch, sugar, fructose, apple, tomato paste, wheat flour, potatoes, tapioca and rice flour
Dietary fibre	Buckwheat, adzuki bean, split peas, green peas, whole pear millet, soy fibre, bamboo, methylcellulose, mushrooms, mung beans, carrot, pumpkin, brown rice, lentils, black beans, wheat fibre, chickpeas, quinoa, red lentil and locust bean gum

Popular Brands of Meat Substitutes:

There are hundreds of meat substitutes in the market, making meat-free, high-protein and good content of fiber that are exceedingly convenient. A few companies make popular meat substitutes that are not strictly on vegan products and these include:

✚ **Beyond Meat:** It is one of the newer companies for meat substitutes that look, cook and taste just like meat. Their products are vegan and free of GMOs, gluten and soya. The Beyond Burger is made using pea protein, canola oil, coconut oil, potato starch

and other ingredients. They also make sausages, chicken substitutes and meat crumbles.

- ✚ **Gardein:** They make variety of widely available ready-to-use meat substitutes that include substitutes for chicken, beef, pork and fish ranging from burgers to strips to meatballs. Their products are certified vegan and dairy free.
- ✚ **Tofurky:** It is famous for their Thanksgiving roast that produces meat substitutes including sausages, deli slices and ground meat. Their products are made using tofu and wheat gluten and are unsuitable for gluten or soy free diets. These products are high protein and calorie option, are non-GMO verified and vegan.
- ✚ **Yves Veggie Cuisine:** These vegan products include burgers, deli slices, hot dogs and sausages, as well as ground “beef” and “sausage.” Their Veggie ground round is made from soy and wheat protein products along with many other essential ingredients including added vitamins and minerals.
- ✚ **Lightlife:** It is a long-established meat substitute company making burgers, deli slices, hot dogs and sausages as well as ground “beef” and “sausage.” They also produce frozen meals and meatless jerky using soya and wheat.
- ✚ **Boca:** Boca products are widely available meat substitutes including burgers, sausages and meat crumbles. They are highly processed products made using soya protein concentrate, wheat gluten, hydrolyzed corn protein and corn oil along with long list of other essential ingredients. Many of their products contain cheese.
- ✚ **Morning Star Farms:** They make several flavors of veggie burgers, chicken substitutes, veggie hot dogs, veggie bowls, meal starters and breakfast meats. Their products have both soya and wheat-based ingredients.

Benefits of plant-based meats: In today’s market, there is a wide range of nutrition data and components on plant-based meats. However, a few health benefits of eschewing animal products in favor of plant foods are given below:

- Lowering the risk of heart diseases and stroke
- Can reduce inflammation reactions
- Lowers cancer risk due to plant derived antioxidants
- Improve the health of gut microbiome and digestion
- Increase frequency of bowel movements due to its fiber content

- Weight loss and better weight control due to reduce intake of fats
- Reduce blood pressure and risk of hypertension
- Control blood sugar levels due to lowered digestion rate
- Consumption of saturated fat will be reduced.



Disadvantages of vegan meat: The few disadvantages of using vegan meats include:

- **High in sodium:** Plant-based meat can include excessive amount of sodium that can be dangerous to persons with diabetes, hypertension and other health problems. The sodium content of plant-based meat products like burgers, mince, sausages, poultry, fish and other meat substitutes on an average ranged between 500– 1200 mg / 100 g of product.
- **May have lower nutritional value:** Plant-based meat may have a lesser nutritional value since it they lack protein with complete amino acid profile, omega 3 fatty acids and other elements found in animal-based meat needed by human body for its normal functioning.
- **Highly processed and full of additives:** Plant-based meat might have artificial textures, flavours, colours and other ingredients when consumed excessively can be harm.
- **Costly:** Some of the processed products may be costly compared to regular meats.

Conclusion

The popularity and demand for the plant-based meats are increasing day by day. People have begun to embrace environmentally friendly and sustainable diets. Meat substitutes are widely accessible and can provide a healthy way to obtain protein and other nutrients without eating meats along with providing important minerals and fibre. They may however have lesser levels of some nutrients like protein, vitamin B₁₂ and zinc than typical meat products. Those interested in trying plant-based meats should look at the ingredients list to determine whether items are nutrient dense. They should also avoid or restrict accompaniments that are high in sugar, fat, or salt. Many are excellent for vegetarians and vegans, and provide good choice for meat eaters who want to reduce their meat consumption for health or environmental reasons.

