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THE POTENTIAL OF AGRO-INDUSTRIAL BY PRODUCT AS A FEED FOR SUSTAINABLE POULTRY PRODUCTION

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ABSTRACT

Agricultural and industrial activities generate significant amounts of agro-industrial waste, including by-products of crop, food, oilseed industry, textile industry, nadequate disposal of agro-industrial waste pollutes the environment and poses a risk to human and animal health. Agro-industrial by-products are a significant and valuable biomass, that offer potential remedies for issues related to poultry nutrition. Therefore, the efficient creation of wholesome, affordable, and sustainable poultry feed is one method of waste and by-product management.

KEYWORDS: Agro-industrial by-products, Animal feed formulation, Nutrient recycling, Sustainable poultry production, Waste valorization

INTRODUCTION

Agricultural-based sectors generate enormous amounts of residues annually. Approximately 500 million tonnes of agricultural residue are produced annually, with 92 million tonnes, or 18.4%, being burned in India. These consist of leftover veggies, seeds, peels, and slurry. By-products obtained from the processing of agricultural products are referred to as agro-industrial waste. These wastes have been improperly disposed of, which has had a detrimental effect on human and animal health as well as environmental pollution, greenhouse gas emissions, and climate change (Singh et al., 2021).

WHY THERE IS A NEED OF AGRO-INDUSTRIAL BY-PRODUCT?

Due to a lack of fresh water, fertile land, and climate change, as well as competition from food, fuel, and feed, and a scarcity of livestock feed, the production of animal feed is already confronted with a number of problems and difficulties. These issues are particularly noticeable in nations that generate middle- and low-income incomes. Furthermore, the price of currently used commodities like maize, wheat, soy, and others that are used to make poultry feeds has gone up recently. In order to preserve the sustainability of

livestock production, it is now essential to investigate inexpensive, nutrient-dense raw resources and create innovative, inexpensive feed (Yitbarek, 2019). Given their low cost, ease of availability and high concentration of bioactive compounds that may improve animal welfare, growth and health, AIBP have been considered as one of the most promising and lucrative alternatives or ingredients to make poultry feed (Malenica *et al*., 2022). Additionally, agro-industrial waste contains valuable nutrients such as complex polysaccharides, proteins, carbs, and polyphenols. Agro-industrial by-products (AIBP) have the potential to function as immune-modulators, antioxidants, and antimicrobials (Sugiharto *et al*., 2018). Some of the most prevalent agro-industrial wastes include by-products from fruit, food, oilseed-industrial by-products, sugar industry by-products, animal by-product, textile, tannery by-product, grain, flour mill byproducts as described below:

Table 1: Exampples of agro- industrial by products

S.No.	By- Products	Parts
1	Fruit Juice Industry Leftovers	Apple pomace, orange by-products (e.g., peels, seeds, and membranes)
2	Nonconventional Oilseed Industrial By-Product	Sunflower seed meal
3	Food and fruit by-Products	Pomegranate peels and seeds, Potato peel waste, Cassava peel waste, Banana peel, Cashew shells, Spent coffee waste
4	Tomato Processing By-Products	seeds, skin (or peel), and a small amount of pulp
5	Other Agro-Industrial By-Products	Sugar beet pulp, brewers' grain, malt sprouts, and brewers' dried yeast
6	Sugar industry by-products	Bagasse, molasses, pressmud, spent wash
7	Grain and four mills, starch products	Rice straw, Rice bran, Wheat straw, Barley straw, Oat straw, Corn stalks and cobs, Soya stalks, Soy meal
8	Fish processing by-product	Solid fish waste
9	Jute/ coir retting units	Lignocellulose residues (coir dust, residual pith)
10	Textile industry and tannery	Effluent

Although using agro-industrial by-products as animal feed may appear sensible and cost-effective, there are several drawbacks. High amounts of AIBP in animal diets have the potential to reduce feed digestion. Furthermore, increasing AIBP can reduce nutritional intake and animal growth performance. Therefore, it

is critical to examine the nutritional value, the quantity of active chemicals and the bioavailability of AIBP.

CONCLUSION

Agro-industrial by-products (AIBP) are affordable, accessible, nutritious and can cut waste creation, lower greenhouse gas emissions, so reducing its environmental impact. Therefore, incorporation of AIBP in poultry feed can lead to sustainable poultry production.

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