

Sustainable Conversion of Agro-Industrial Food Waste (AIFW) to Protein Rich Animal Feed

Kashif Rasool

Qatar Environment and Energy Research Institute (QEERI), Hamad Bin Khalifa University, Qatar Foundation,
Doha, Qatar.

ABSTRACT

The rising global population and increasing demand for sustainable food systems have highlighted the need for innovative solutions to produce protein-rich animal feed. With a large portion of agricultural resources currently allocated to feed production for livestock, the rapid increase in agricultural waste has become a pressing issue for both economic and environmental sustainability. This study explores microbial protein (MP) production as an alternative protein source for animal feed. MP is derived from various microorganisms, including bacteria, fungi, yeast, and algae, and offers a promising approach for upcycling agricultural waste. By utilizing renewable carbon and electron sources, MP production not only provides a sustainable solution but also reduces the environmental impact associated with traditional feed production. Recent research has focused on the valorisation of agro-industrial waste to cultivate high-protein microorganisms for feed use. This integrated approach contributes to the development of cost-effective and eco-friendly protein sources. The presentation will review potential waste feedstocks, advancements in MP-producing microorganisms, and bioprocess technology. Additionally, it will address current challenges, opportunities, and future research directions for scaling MP production as a sustainable alternative in the animal feed industry.
