

## ABSTRACT

This study aimed to assess the economically viable biomass feedstocks for bioenergy generation and their export potential. The Product Space Model was the key tool used to achieve the aim by accomplishing certain objectives. The study's findings showed that Pakistan has abundant biomass resources for energy production. Wheat straw was found to have the highest energy potential that is 5871 MW, among other considered bio-wastes. The lowest energy generation potential was found for rice husk 256 MW. Canola oil, leather flesh wastes, and poultry fattening have higher PRODY values 46735, 44438, and 41791, respectively. They have high-income potential and are suitable for export after meeting local energy demand. While the goat manure, cashew nut shell, and cotton stalk have lower income potential having values 3641, 4225, and 4421, respectively. The bio-wastes having low-income potential are more beneficial to utilize in energy generation plants within the country. The study has practical applications in economic, social, and environmental perspectives as it has focused on economic, clean, and sufficient energy. Furthermore, it identified exportable biomass feedstocks to strengthen the economy of Pakistan. Further research must be conducted to evaluate other indicators of Product Space Model, as they would provide a clearer picture of bioenergy and biomass export prospects.