



PHYTOCHEMICAL COMPOSITION, ANTIOXIDANT ACTIVITY, AND SPECTROSCOPIC-GCMS ANALYSIS OF CORN COB WASTE TOWARDS SUSTAINABLE BIOMEDICAL USE

1. INTRODUCTION

The exploration of agricultural wastes for bioactive compounds is critical for advancing sustainable biomedical innovations in line with Sustainable Development Goals (SDGs) 3, 9, and 12. This study was aimed to profile the phytochemical composition, antioxidant, and chemical profile of ethyl acetate extract of corn cob waste for pharmaceutical and biomedical use

2. OBJECTIVES

Extraction of bioactive compounds in corn cobs.

Cob Pulverization → Maceration → Concentration with Rotatory Evaporator

Screening for phytochemicals

Flavonoids, alkaloids, terpenoids, tannins, steroids, saponins, cardiac glycosides, anthraquinones, and phenols.

Evaluation of antioxidant activity of the extract using:

Lipid peroxidation inhibition, NO radical inhibition, H₂O₂ scavenging, DPPH radical scavenging, Ferric reducing antioxidant power (FRAP) assay

Characterization of the chemical composition of the extract using:

UV-Vis spectroscopy, FTIR analysis, GC-MS profiling

3. SDGs ADDRESSED

SDG 3 – Good Health and Well-Being:

Development of natural antioxidants and bioactive compounds with potential for disease prevention and wound healing.

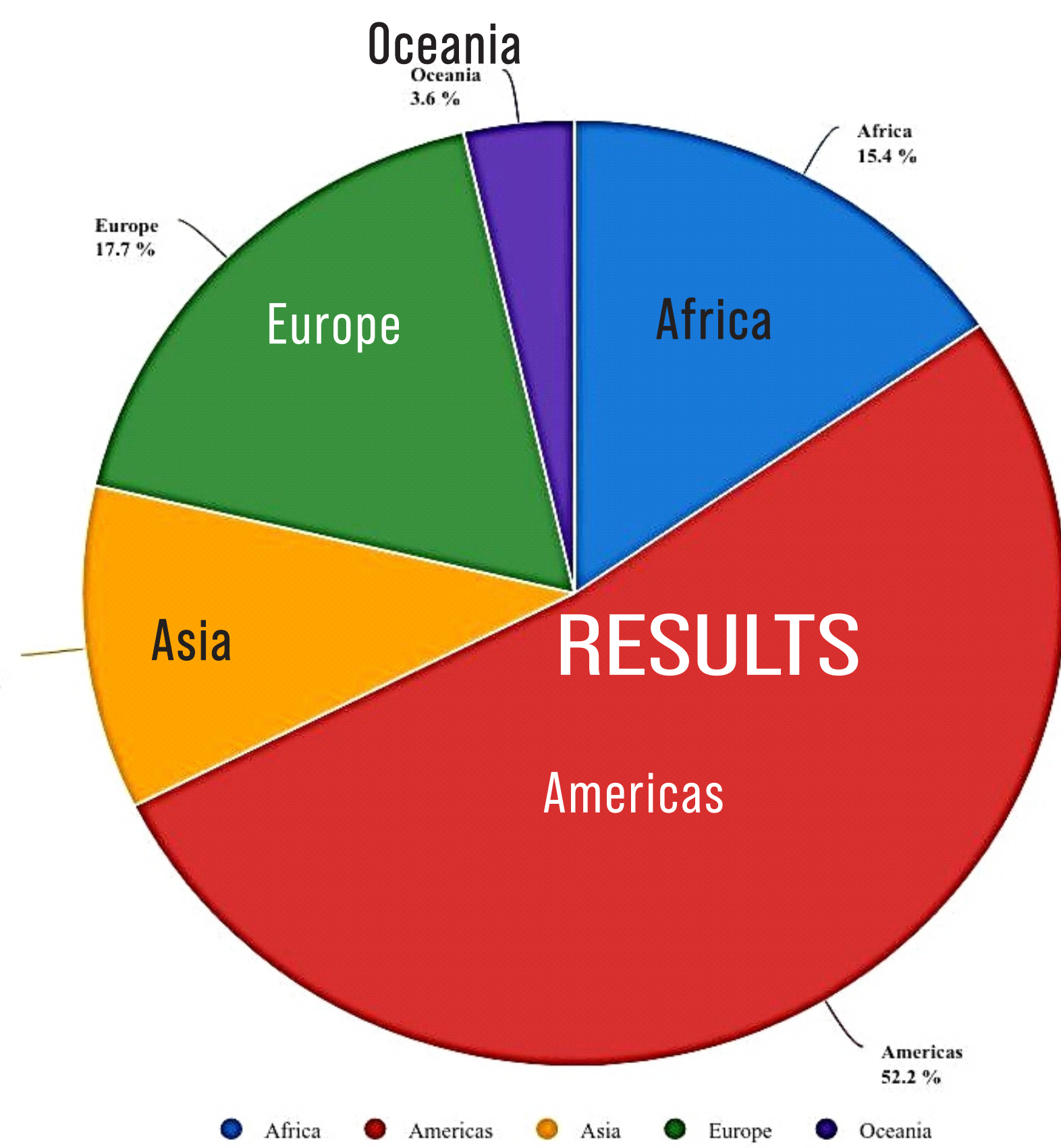
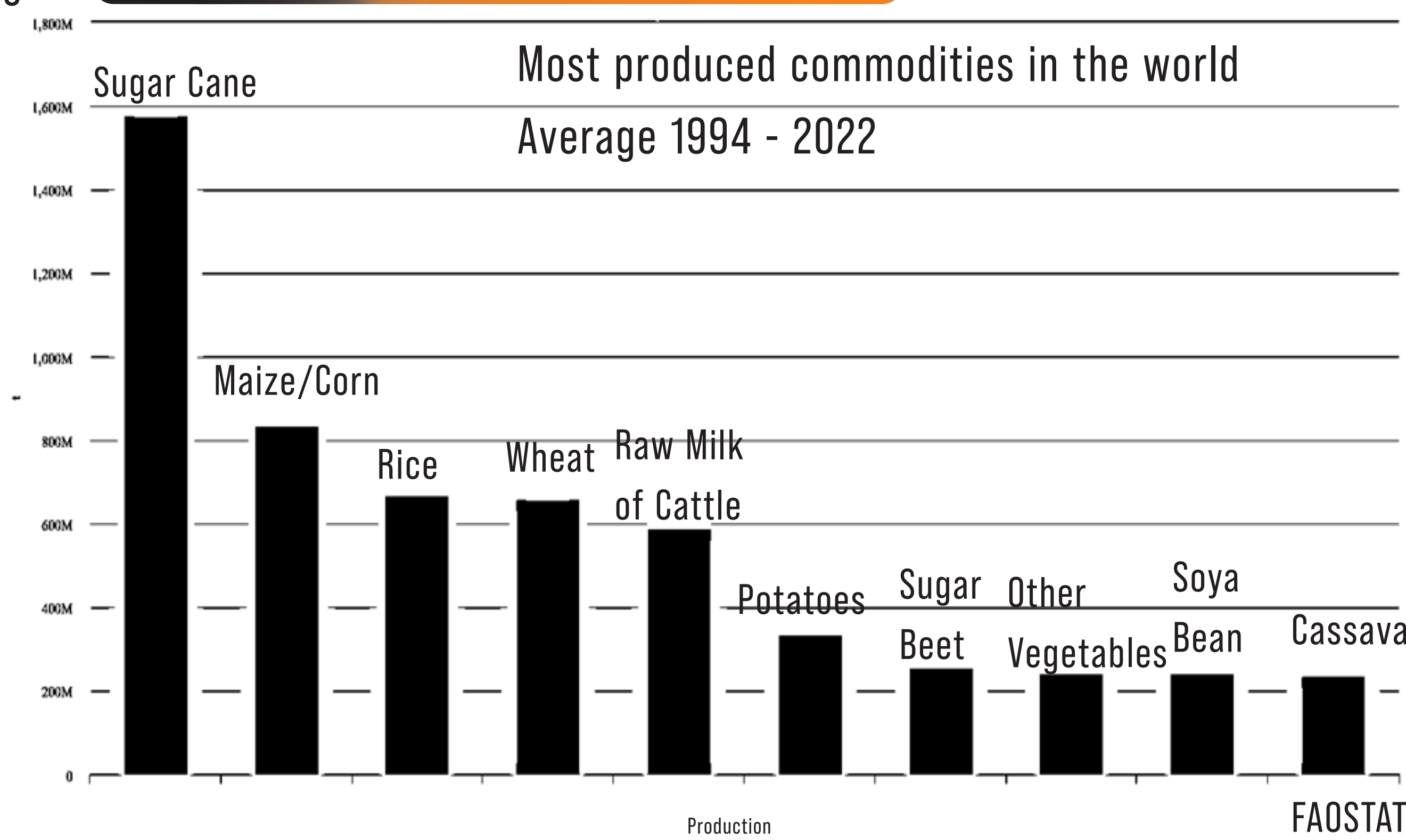
SDG 9 – Industry, Innovation, and Infrastructure:

Valorization of agricultural waste (corn cob) into useful biomedical resources, promoting innovation in green chemistry and pharmaceutical industries.

SDG 12 – Responsible Consumption and Production:

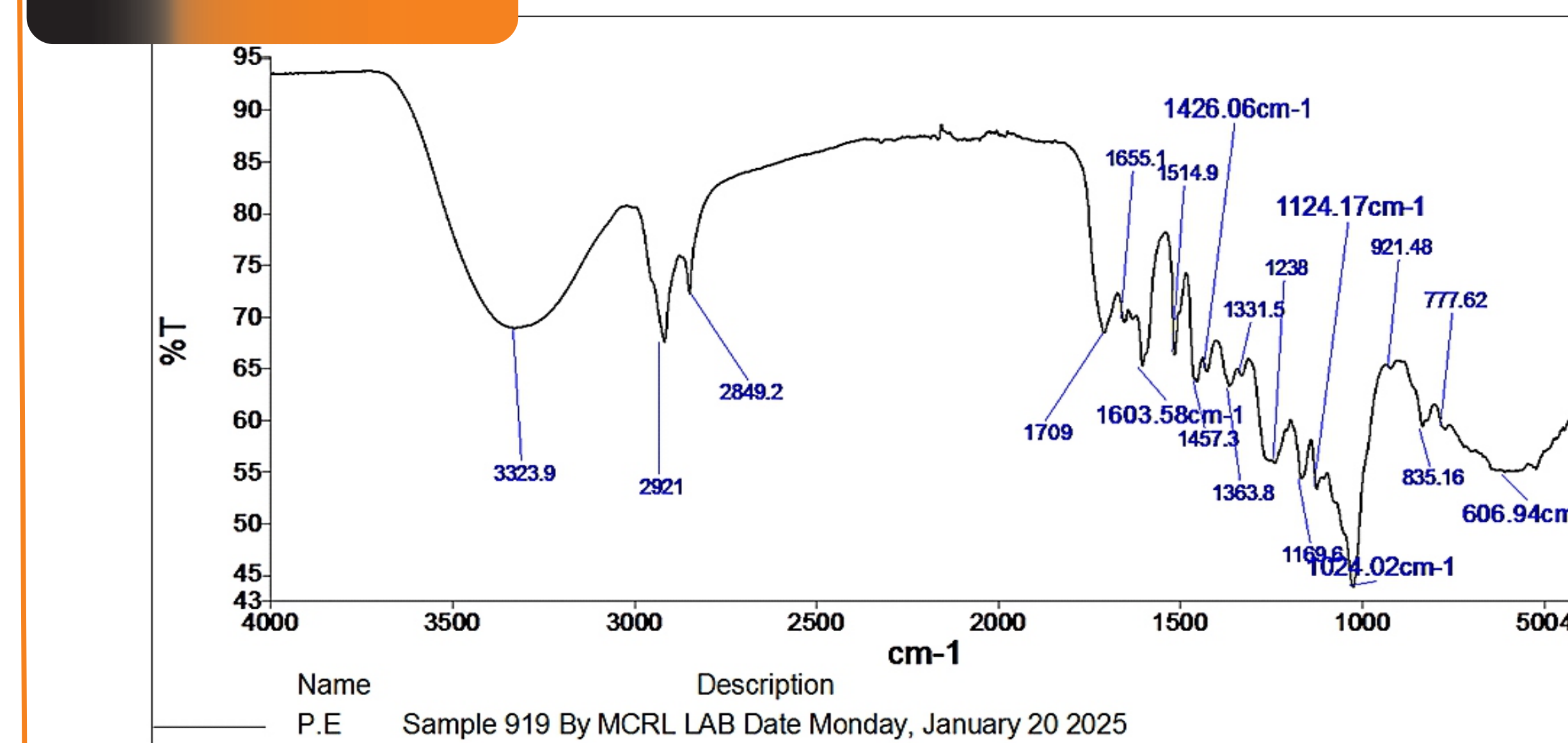
Sustainable utilization of agro-waste to reduce environmental burden and create value-added products.

4. LITERATURE REVIEW



6. RESULTS

A. FTIR RESULT



Pharo 300 15090532 2.17-Merck-2.20

B. UV-Vis RESULT

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Spectrum_200_900_250114_0217.csv

Absorbance
Smoothing

