

## **Extraction and Characterization of Keratin from Chicken and Swiftlet Feather**

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### **ABSTRACT**

Keratin is a durable and fibrous protein of hair, nails, horns, hoofs, feathers and the epithelial cells in the outermost layers of the skin. Keratin in animals mainly presents in vertebrates such as mammals, birds and reptiles including chicken and swiftlet. This study aims to characterize keratin extracted from chicken and swiftlet feathers. The extraction of the keratin performed using dimethyl sulfoxide (DMSO) at high temperature. The extracted keratin from both samples were used for the characterization process using Bradford protein assay, CHNS analysis and Fourier-transform infrared (FTIR) spectroscopy. This study showed that keratin extract of swiftlet feather showed higher protein concentration (0.813 mg/mL) than keratin extract of chicken feather (0.646 mg/ml). The highest composition for keratin extract is hydrogen which are 4.97% for keratin extract from swiftlet feathers and 3.12% for keratin extract from chicken feathers. FTIR analysis exhibited that carboxyl groups and amino groups are presence in both keratin samples however, the protein value is higher in swiftlet feathers compared to chicken feathers. This study's outcome is significant in discovering keratin extract from swiftlet feathers containing high protein content due to the breakdown of disulfide bonds. Furthermore, this research is the first report on keratin characterization from swiftlet feathers that would be useful for high value future keratin study.

### **KEYWORDS**

Chicken Feather, Extraction, Keratin, Protein, Swiftlet Feather

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