

# Proximate Composition of *Symphytotrichum subulatum* Stem: A Potential Source of Nutritional Value

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Submitted: 2025, Dec 16; Accepted: 2026, Jan 09; Published: 2026, Jan 22

**Citation:** Ali, W., Alam, A., Ahmad, W., Wahab, A., Khan, A., et al. (2026). Proximate Composition of *Symphytotrichum subulatum* Stem: A Potential Source of Nutritional Value. *J Traditional Medicine & Applications*, 5(1), 01-02.

## Abstract

Analysis of a feed sample conducted at the Feed & Water Testing Laboratory, Poultry Research Institute, Rawalpindi, revealed compositional parameters: Moisture (6.5%), Crude Protein (11.6%), Crude Fat (1.2%), Crude Fiber (23.4%), and Total Ash (7.0%). Analysis followed A.O.A.C. standards.

**Keywords:** Proximate Analysis, Proteins, Moisture, Crude Fat, Crude Fiber

## 1. Introduction

Proximate analysis affords vital evidence on the nutritional composition of plants, including ash, fiber, fat, protein and moisture, which are important for evaluating medicinal and nutritional potential [1]. *Symphytotrichum subulatum* Michx is a medicinal plant with reported phytochemical properties, but no studies have measured the nutritional value of its stem [2]. Plant stems are often rich in fiber and moderate in protein, contributing to both nutritional welfares and potential helpful applications [3]. Standard AOAC methods allow accurate determination of percentage components, confirming liable and comparable results [4]. Evaluating the proximate composition of the stem extract can provide valuable perceptions for its use as a nutritional supplement or in herbal treatments [5].

## 2. Materials and Methods

The plant *Symphytotrichum subulatum* Michx. was collected from Galabad, Tehsil Adenzai, District Dir Lower, Khyber Pakhtunkhwa, Pakistan. Wajid Ali was identified and authenticated

from the Flora of Pakistan. The plant stems were cleaned with distilled water, dried in a shaded area and then ground to powder form using a mortar and pistil. The sample was submitted for analysis at the Feed & Water Testing Laboratory, Poultry Research Institute, Rawalpindi. Proximate composition, including moisture, crude protein, crude fat, crude fiber, and total ash, was determined according to the standard procedures of the Association of Official Analytical Chemists applying the AOAC official method [6]. All analyses were performed in triplicate to confirm accuracy and reliability [7].

## 3. Result and Discussion

The feed sample contained 6.5% moisture, 11.6% crude protein, 1.2% crude fat, 23.4% crude fiber, and 7.0% ash are illustrated in table 1. Moisture indicates good storage stability, protein is moderate, fat is low, and fiber is high, which may affect digestibility. Overall, the composition meets basic nutritional requirements for poultry. The stem of *Symphytotrichum subulatum* contained 6.5% moisture, 11.6% crude protein, 1.2% fat, 23.4%

fiber, and 7.0% ash. Compared with the *Datura innoxia* stem, which showed higher moisture (15.0%), fat (8.5%), fiber (29.66%), and ash (19.8%) but lower protein (6.16%), clear differences were

observed. These findings indicate that the *S. subulatum* stem is nutritionally superior due to its higher protein and better storage stability, making it a promising source for feed applications [8].

Parameters	Result
Moisture %	6.5%
Crude protein %	11.6%
Crude fat %	1.2%
Crude fiber %	23.4%
Total ash %	7.0%

**Table: Proximate Analysis of *Symphotrichum subulatum Michx* Stem**

#### 4. Conclusion

The feed sample shows moderate protein, low fat, high fiber, and acceptable moisture and ash levels. It generally meets basic nutritional requirements for poultry, though adjustments may be needed to optimize digestibility and energy content.

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