

## Leaf Epidermal Micromorphology as Identification Features in Accessions of *Sesamum indicum* L. Collected from Northern Nigeria

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**Abstract :** Fresh leaves of twelve accessions of *S. indicum* were studied to examine their stomatal features, trichomes, epidermal cell shapes and anticlinal cell-wall patterns which may be used for the delimitation of the varieties. The twelve accessions of *S. indicum* studied have amphistomatic leaves, i.e. having stomata on both surfaces. Four types of stomatal complex types were observed namely, diacytic, anisocytic, tetracytic and anomocytic. Anisocytic type was the most common occurring on both surfaces of all the varieties and occurred 100% in varieties lale-duk, ex-sudan and ex-gombe 6. One-way ANOVA revealed that there was no significant difference between the stomatal densities of ex-gombe 6, ex-sudan, adawa-wula, adawa-ting, ex-gombe 4 and ex-gombe 2. Accession adawa-ting (improved) has the smallest stomatal size ( $26.39\mu\text{m}$ ) with highest stomatal density ( $79.08\text{mm}^2$ ) while variety adawa-wula possessed the largest stomatal size ( $74.31\mu\text{m}$ ) with lowest stomatal density ( $29.60\text{mm}^2$ ), the exception was found in variety adawa-ting whose stomatal size is larger ( $64.03\mu\text{m}$ ) but with higher stomatal density ( $71.54\text{mm}^2$ ). Wavy, curve or undulate anticlinal wall patterns with irregular and or isodiametric epidermal cell shapes were observed. These accessions were found to exhibit high degree of heterogeneity in their trichome features. Ten types of trichomes were observed: unicellular, glandular peltate, capitate glandular, long unbranched uniseriate, short unbranched uniseriate, scale, multicellular, multiseriate capitate glandular, branched uniseriate and stallate trichomes. The most frequent trichome type is short-unbranched uniseriate, followed by long-unbranched uniseriate (72.73% and 72.5%) respectively. The least frequent was multiseriate capitate glandular (11.5%). The high variation in trichome types and density coupled with the stomatal complex types suggest that these varieties of *S. indicum* probably have the capacity to conserve water. Furthermore, the leaf micromorphological features varied from one accession to another, hence, are found to be good diagnostic and additional tool in identification as well as nomenclature of the accessions of *S. indicum*.

**Keywords :** *Sesamum indicum*, stomata, trichomes, epidermal cells, taxonomy

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