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Essential oil content and composition of different parts of *Cymbopogon citratus* Stapf. (Gramineae) grown in Sri Lanka

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Cymbopogon citratus Stapf. (Family Gramineae) has been used in an array of purposes mainly in essential oil and are often found inherbal supplements, food, tea, andcosmetic industries. Since the industrial value of *C. citratus* is mainly dependent on the phytochemical content of different parts of the plant, confirmation of the availability of proper phytochemical content in the harvested parts is essential to ensure the precise quality of final products. Therefore, the present study was conducted to determine the distribution of essential oil content and composition present in different parts of *C. citratus*. Authenticated, 4 months old, *C. citratus* plants were harvested and separated into different parts. Essential oil was distilled using a Clevenger oil arm. The composition of essential oil was determined using GC-MS. Phytochemical fingerprints were determined using a thin Layer chromatographic technique (TLC) according to WHO 2008. Results are presented as an average ± standard error. Results revealed that all the tested parts contained a marked content of essential oil. The highest essential oil content was reported from leaves (0.91 ± 0.29 on fresh weight basis). Essential oil content varied as leaf > sheath > roots. The oil was a mixture of different compounds. The composition of each part demonstrated a clear variability. The present study identified 9 major constituents, representing 87%, 82%, and 61% of total oil profiles of leaf, sheath, and roots, respectively. The major compounds present in leaves were neral, β-myrcene, geraniol, citranellol, and citral, while selina-6-en-4-ol and α-citral were prominent compounds in sheath essential oil. However, root essential oil consisted of β-citral, geraniol, selina-6-en-4-ol, α-cadinol, and t-murolol as the major constituents. TLC profiles also exhibited clear variation among all three parts. The composition of roots essential oil differs from that of leaves and sheaths. It can be concluded that all the three parts of the plant could be used for extraction of different essential oil used in industries. Further, lemongrass could be introduced as an essential oil bearing industrial crop for large scale cultivation for industrial purposes in Sri Lanka.

Keywords: *Cymbopogon citratus*, Clevenger arm, essential oil, Gramineae, phytochemical composition

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