

COMPOSITION OF ESSENTIAL OILS IN *BOTHRIOCHLOA BLADHII* FROM MAHARASHTRA

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The essential oil extracted from plants are generally used as raw material for various industrial applications, like medicinal adjuncts, perfumery, insect repellent, food and cosmetics (Hamid *et al.* 2011). The genus *Bothriochloa* Kuntze is represented as second largest genera of aromatic grasses (Gupta and Deniel 1982). Previously many workers had analyzed essential oil of *Bothriochloa bladhii* from various regions of India (Melkani *et al.* 1984; Bhandari *et al.* 1993; Verma *et al.* 2008; Billy 1965; Bahl *et al.* 2014). During present investigation oil was extracted from dried aerial parts of naturally growing *B. bladhii* and analyzed by Gas-chromatographic and mass spectrometric (GC-MS) methods.

Naturally growing plants of *Bothriochloa bladhii* were collected at flowering stage from Maval, District Pune, and identified following Bor (1960); Blatter and McCann (1984); and Potdar *et al.* (2012). The voucher specimen (*Shaikh Tarbej* YCCSK 268) has been deposited in the Department of Botany, Shivaji University, Kolhapur (SUK). Shade dried plant material was distilled for 3 hours in Clevenger type distillation apparatus (Clevenger 1928). The distillate was isolated in glass screw cap tube and stored in dark at 4°C until analyzed.

The analysis of the essential oil was performed using Shimadzu GC-2010 (Kyoto, Japan), equipped with Rtx-1 MS capillary column (30 m × 0.25 mm). An electron impact ionization system with ionization energy of 70 eV was used. For this purpose, 1.0 µl of oil was diluted with hexane (1:100 v/v) and this sample

was injected manually in the split mode. Helium was the carrier gas at a flow rate of 1.04 ml/min. Injector and MS transfer line temperatures were set at 250°C. Column temperature was initially at 40°C, and then gradually increased to 280°C at the rate of 5°C 2 min⁻¹.

The components were identified on the basis of comparison of their relative retention time (RT) and mass spectra with those of NIST library data of the GC-MS system (NIST 2018), and reported in the literature.

Bothriochloa bladhii (Retz.) S. T. Blake yielded 0.78 % oil (v/w) from aerial part, on dry weight basis. Seven different compounds were recognized from oil extract of *B. bladhii* during present investigation (Table 1).

The major constituents of essential oil were bicyclic monoterpen hydrocarbons (70.52%), tricyclic monoterpen hydrocarbons (27.39%), transition metal (1.46%), keton group (0.39%) and mono-cyclic saturated hydrocarbon (0.24%). The compounds identified from the sample were camphene (41.39%), α -pinene (27.83%) and tricyclene (27.39%), Bornylene (1.30%) and Molybdenum (1.46%). The essential oil was found to be rich in camphene, α -pinene and tricyclene. The cyclopentane and ethanon were reported for the first time in trace amount, during present investigation.

As Camphene has been reported in high proportion, present species can be considered as an alternate source for camphor synthesis, production of perfumes and deodorants.