Essential oil chemical characterization of *Artemisia annua* L. grown in glass house and experimental field.

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ABSTRACT: *Artemisia annua* L., is usually known for producing artemisinin effective molecule used in the treatment of malaria[1]. It is a highly aromatic species with large amount of essential oil, rich in terpenes, arousing so much interest in the perfume and cosmetics industry[2]. Studies are being used for the cultivation and post-harvest conservation of this species in order to improve the quality of chemical compounds of interest. Thus, this study aimed to evaluate the essential oil chemical characteristics of A. annua subject to two forms of conventional crops: glass house and experimental field.

MATERIALS AND METHODS: The species of *A. annua* was grown in the glass house of the Biochemistry Department Botucatu (UNESP) and experimental field of the Multidisciplinary Center for Chemical, Biological and Agricultural (CPQBA), State University of Campinas (Unicamp), located in Paulinia, Brazil. The fresh leaves of each treatment were collected at the end of the month of February, before their buttons flowers. The leaves fresh were drying oven air circulation at 40 ° C to constant weight. After drying the material, about 500 g of dried leaves were subjected to extraction of essential oil, in triplicate, by Clevenger system hydrodistillation for 2 hours. The essential oil was removed with a glass pipette, heavy and quantified by GC-MS. In each treatment was checked for humidity exists in the dried plant material. To this, it was quantified about 3g dry weight, in triplicate, being subjected to air circulation oven at 105 ° C for 24 hours.

RESULTS AND CONCLUSION: Among the treatments it was possible to verify a significant variation in the percentage values of humidity and yield of essential oil as well as the chemical composition thereof (Table 1).
Table 1. Percentage of average humidity and yield in essential oil of A. annua in accordance with the treatments and their chemical constituents.

Treatments	humidity (%)	Yield (%)	Profile Chemical (% relative)
glass house	9,04 a	0,24 b	**(a)** 0,0; **(b)** 0,58; **(c)** 2,73; **(d)** 17,51; **(e)** 1,19; **(f)** 5,94; **(g)** 10,96; **(h)** 1,07; **(i)** 17,28; **(j)** 0,0; **(k)** 3,50; **(l)** 2,98; **(m)** 3,17
field	13,11 b	1,04 a	**(a)** 0,72 **(b)** 1,48 **(c)** 2,36 **(d)** 24,84; **(e)** 1,38; **(f)** 12,66; **(g)** 6,76; **(h)** 1,86; **(i)** 22,63; **(j)** 1,01; **(k)** 2,48; **(l)** 1,10; **(m)** 2,17

(a) alpha-pinene; (b) p-cymene; (c) 1,8-cineol (eucalyptol); (d) camphor; (e) alpha-copaene; (f) trans-caryophyllene; (g) trans-beta-farnesene; (h) beta-chamigreno; (i) germacrene D; (j) beta-selinene; (k) bicyclogermacrene; (l) spathulenol; (m) caryophyllene oxide.

Costa et al., (2012) show that significant variation between treatment may be related to edaphoclimatic effects, especially the amount of direct sunlight on the crop species.

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