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Yield and chemical characterization of the essential oil of *Artemisia annua* L. stored under vacuum.

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ABSTRACT: *Artemisia annua* L., is known for producing artemisinin molecule used in the treatment of malaria worldwide. It is an aromatic species of great interest in perfumery and cosmetic[1] industries because it has large amount of essential oil, rich in terpenes[2]. The study post-harvest conservation of this species is important for the quality of their chemical compounds of interest. Thus, this study aimed to evaluate the yield and essential oil chemical characteristics of A. annua subjected to storage in polyethylene bags with vacuum and without vacuum (wrapped in Kraft paper), for a period of six months.

MATERIALS AND METHODS: The species of *A. annua* was grown in the 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 100 g of dried leaves were subjected to two types of storage: in polyethylene bags with vacuum and without vacuum (wrapped in Kraft paper), both at room temperature (± 24 ° C) for six months. At the end of the period, the plant material was submitted to the 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 was possible to verify a significant variation in the percentage values of humidity and yield of essential oil (Table 1).

Table 1. Average percentage of humidity and yield in essential oil of A. annua in accordance with the treatments and their chemical constituents.

Treatments	humidity (%)	Yield (%)	Chemical Constituents (% relative)
Zero Time	13,11 a	0,86 ab	**(a)** 0,0; **(b)** 1,5; **(c)** 2,5; **(d)** 30;8 **(e)** 0,0; **(f)** 9,2; **(g)** 3,8; **(h)** 2,1; **(i)** 11,2; **(j)** 1,4; **(k)** 1,3; **(l)** 3,9; **(m)** 6,8
Vacuum	8,65 b	0,93 a	**(a)** 0,5; **(b)** 1,5; **(c)** 2,5; **(d)** 31,0; **(e)** 1,1; **(f)** 10,2; **(g)** 4,2; **(h)** 2,6; **(i)** 12,4; **(j)** 1,5; **(k)** 1,1; **(l)** 3,3; **(m)** 5,7
Without vacuum	10,68 b	0,83 b	**(a)** 0,6 **(b)** 1,4 **(c)** 2,6 **(d)** 29,4; **(e)** 1,1; **(f)** 12,2; **(g)** 5,6; **(h)** 2,1; **(i)** 19,9; **(j)** 0,0; **(k)** 1,5; **(l)** 2,4; **(m)** 4,3

(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.

In this work, we can see that the vacuum storage, specimens have better quality conservation results. Lima et al., (2014) showed similar results to vary the bean storage conditions.

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