



## Effects of drying kinetics on essential oil yield from *Piper aduncum* L. leaves

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*Piper aduncum* L., better known as “pimenta-de-macaco”, is one of the most important natural resources of dillapiole, a chemical compound with great potential to be used in the insecticide industry. The yield of the essential oil of this plant, however, is directly affected by the conditions applied before extraction. This work intends to evaluate the effects of natural air-drying on the yield of essential oil of leaves from *P. aduncum* L. To perform the tests, plants of this species were collected and cleaned at Embrapa Amazônia Ocidental in December, 2014. The drying process was performed at the same location during an 8-day period, divided into 5 groups with 5 repetitions each. The effective diffusivity coefficient was determined based on Fick’s law and the drying curve obtained from moisture ratio and time data was fitted to five different mathematical models. The drying of *P. aduncum* L. leaves took place only in the falling rate period, since the constant rate period was absent in the drying curve. Among the models investigated, the two terms model was found to best fit the behavior of the drying curve, showing the highest value of  $R^2 = 0.9946$  and low values of  $\chi^2 = 0.00219$ , RMSE = 0032715 and MBE = 0.005351. The results showed that the yield of essential oil was inversely related to the moisture content present in the biomass, given that the yield of dried leaves after 192 h was 2.7 times higher than from the initial fresh ones. Therefore, it is recommended that leaves from *P. aduncum* L. are submitted to drying process prior to the extraction in order to have a greater yield efficiency in a larger scale production.

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