Different types of drying are being used for thermosensitive products. The fundamental purpose is the reduction of transportation and storage costs, and increasing of shelf life. At the same time, there is a growing consumer interest in the use of herbs and spices because of the differentiated flavor in distinct foods prepared with them. Drying with air treated at higher temperatures and lower humidity than ambient condition, reduces the quality of dried material. For this reason, alternative drying systems are being investigated. This work has the objective of construction and instrumentation of an air treatment system, based on a heat pump that operates at low temperatures, feeding a tray cabinet for domestic use. The tests were carried out with atmospheric pressure inside the cabinet. After air treatment, dehumidification of air and subsequent heating was done by heat pump, obtaining an increase of 10°C in temperature and loss of 30% in moisture with relation to ambient air (input air). The drying time was defined since the use of load cells for weighing the product in real time, until reach the final moisture content desired. The constructed equipment device showed efficiency for drying of mint, material chosen for the tests. An analysis of the power equipment consumption was realized, and the results were satisfactory.