



Herb Drying

Introduction

Herbs normally have an initial moisture within the 60-85% range and should be dried down to a final moisture of 8-10%. The majority of leaf and root drugs dry satisfactorily at a temperature in excess of 55°C. Sage and Parsley are usually dried in 75-100mm layers on a mesh floor at a temperature of 60°C. There is no precise information on airflow but it is thought that it might be between 6-9m/minute. Herb drying on a commercial scale demands critical temperature levels and the following have been recommended:

Labiatae herbs = 50°C
(e.g. Sage, Mint)

Umbelliferous herbs = 80-100°C
(e.g. Fennel, Dill, Parsley)

Bruising should be avoided at all costs and leaves and stems must be completely dried to avoid threshing problems.

Warm air drying of herbs is also carried out either in a shelved cupboard with a blower heater, or on a larger scale in a shelved compartment with a heat source and an extractor fan. A shallow depth is very important to ensure even drying and 75-100mm layers are not necessarily suitable for some herbs and this can only be gauged by experience.

Materials containing volatiles should not be dried at temperatures above 35°C and barks and woody material can be dried at temperatures up to 45°C. Widely varying views, particularly regarding temperatures have been suggested. It is however clear that in this country artificial drying is necessary. There is virtually no information on airflow requirements but it is suggested that a velocity of 9m/minute be used.

On the basis of information from a book entitled "*Culinary and Medicinal Herbs*" and

data received from various companies, drying temperatures of 55-65°C should be used.

Table 1 indicates fan and heater requirements for different sizes of ventilated area. Whilst the fan volume has been specified, pressure requirement has not. From this table you will see that modest airflows are required, but high heater loadings are necessary. Even in the case of a 2 x 1 m area some 10kW would be required.

Table 1 Fan and Heater Requirements (to give a temperature of 60°C)

Platform Size (m)	Airflow (m ³ /hour)	kW to give 27°C lift
3 x 3 m	4860 m ³ /hr	47 kW
2 x 3 m	3240 m ³ /hr	31 kW
2 x 1 m	1080 m ³ /hr	10 kW

The choice of fan is more difficult. During enquiries, fan heaters and extractor fans were mentioned but the preference would be to use a small axial fan, since with a velocity of 9m/minute and material at up to 85% moisture in bed depths up to 100mm, the fan may have to meet a pressure as high as 250Pa. This would be particularly true where leafy material is being dried; leafy material could become airborne as drying progresses and a top hessian screen would be necessary again adding to the system resistance.

If a range of herbs is to be dried, then obviously temperature requirements could vary and although thermostatic control should be used, a 7kW heater could possibly be useful split into three sections (2,2,3); this would give the greatest possible flexibility.

The recommendations above are based on data obtained from a number of sources. Experience can only be gained by trial and error.

Farm Energy Centre
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