

hours; and employing three different samples of ginger (known in the table as I, II and III) obtained from dealers in Ottawa, and ground in the laboratory.

In the fifth column of the subjoined table I have entered a number which is the difference between the specific gravity of the tincture, and that of the alcohol distilled from the tincture. One would expect this difference to bear some definite relation to the quantity of oleo-resin in solution. It is, however, apparent that errors of experiment, introduce variations which greatly militate against the employment of this number as an index to quantity of resin in solution.

Description of Samples.	Time of Maceration. Hours.	Specific Gravity of Tincture.	Specific Gravity of Distillate. .8337	Difference.	Dry Residue per cent.	Alcohol per cent by weight. 85.77	Alcohol per cent by volume. 90.08	Loss of Alcohol per cent by volume.
I.....	20	.8356	.8341	.0015	0.260	85.62	89.96	0.12
II.....	20	.8368	.8349	.0019	0.423	85.31	89.72	0.36
III.....	20	.8362	.8342	.0020	0.337	85.58	89.53	0
I.....	44	.8372	.8354	.0018	0.328	85.12	89.58	0.50
II.....	44	.8377	.8365	.0012	0.499	84.68	89.24	0.84
III.....	44	.8371	.8358	.0013	0.319	84.96	89.46	0.62
I.....	68	.8377	.8358	.0019	0.284	84.96	89.46	0.62
II.....	68	.8380	.8373	.0007	0.460	84.36	88.98	1.10
III.....	68	.8381	.8362	.0019	0.420	84.80	89.33	0.75

An examination of this table shows the following: -

1. Ninety per cent alcohol dissolves from 0.3 to 0.4 parts by weight of resin per 100 measures of tincture, in about three days, at ordinary temperature.
2. The amount dissolved after the first period of 24 hours is very small.

Sample	Dissolved in 20 hours.	Dissolved in 68 hours.	Difference.
I.....	0.260	0.328	.068
" II.....	0.423	0.499	.076
" III.....	0.337	0.420	.083

3. Difference in gravity between tincture and distillate gave no satisfactory indication of the amount of resin dissolved.

4. The specific gravity of a good tincture should be about 0.835 to 0.838. Moor (loc. cit.) quotes the gravity as 0.835 to 0.840.

5. The loss of alcohol in making the tincture need not exceed 1 per cent.

In interpreting the numbers entered in table II, I have allowed for a possible loss of 5 per cent of alcohol, due to manufacture and to keeping the prepared tincture. With ordinary precaution it would seem quite possible to prevent a loss of more than 2 or 3 per cent. With loss of alcohol, due to evaporation or dilution, resins are thrown out of solution, and the strength of the tincture is correspondingly reduced. The tincture becomes cloudy and turbid; and I learn that it is usual to filter the tincture in order to render it clear. This, of course, means the removal of the resins in excess of the quantity soluble in the weaker alcohol.