ROASTED BEETROOT.

By E. G. CLAYTON.

(Read at the Meeting, June 1, 1904.)

IN a former communication (ANALYST, xx., 12) it was shown that chicory sometimes contains added sugar. Another substitute for, or addition to, chicory is alleged to be roasted beetroot; and having had recently to decide whether certain chicory was admixed with this substance, the writer submitted to analysis some samples of beet-

root which previously had been roasted and ground in the laboratory. The results are here stated :

Sample.	Water.	Nitrogen.	Fat.	Matter Soluble in Boiling Water.	Specific Gravity of 10 per cent. Infusion.	Sugar before Inversion (Glucose).	Sugar after Inversion (Sucrose).	Total Sugar.	Soluble Ash.	Insoluble Ash.	Total Ash.	Sand.	Phosphoric Acid (P_2O_5).	Chlorine.	Acidity of Aqueous Extract as Acetic Acid.
(a)	5.03	1.63	0.17	49.52	1030.9	10.23	24.45	34.68	6.52	1.37	7.89	0.97	0.49	0.08	1.69
(b)	—	—	—	—	—	—	—	—	6.46	1.93	8.39	—	—	—	—
(c)	—	—	—	59.16	1032.7	—	—	—	5.19	0.99	6.18	—	—	—	—

On an examination of these figures, it will be seen that roasted beetroot contains a larger proportion of total mineral matter than is usually present in genuine torrefied chicory, and that the soluble ash is about twice as high. In roasted chicory the total ash would appear from the writer's own and many other published analyses to range, as a rule, between 4.5 and 6 per cent., the soluble salts constituting rather more than one-half. In beetroot the total mineral matter ranges from 6 to over 8 per cent., about five-sixths to three-fourths being soluble in water.

Roasted beetroot yields to boiling water more soluble matter than is generally given by roasted chicory—it contains decidedly more sugar—and the specific gravity of its 10 per cent. infusion is considerably higher, amounting to over 1030, as against 1023 or thereabouts. [The present writer's results do not accord with the specific gravity (1022.1) given by Bell ("Foods," 1881) for "red beet."] The acidities of the aqueous extracts are nearly equal; so are the percentages of combined phosphoric acid; but the proportion of chlorine appears to be higher in the ash of roasted beetroot than in that of roasted chicory.

DISCUSSION.

The PRESIDENT said it struck him that the composition of the ash of the roots must vary, according to the soil in which they were grown and the manures applied to the soil. That, at all events, was the case with some other roots.

Mr. HEHNER inquired whether the author had observed any difference in the microscopical structures of the tissues of beetroot and chicory.

Mr. CLAYTON said that he had over and over again carefully examined samples of beetroot against samples of chicory, and the microscopical appearances were so closely similar that he should not like to attempt to differentiate between the two by microscopical examination. The well-marked spiral vessels observable in chicory were also to be seen in beetroot, and the dimensions were similar.