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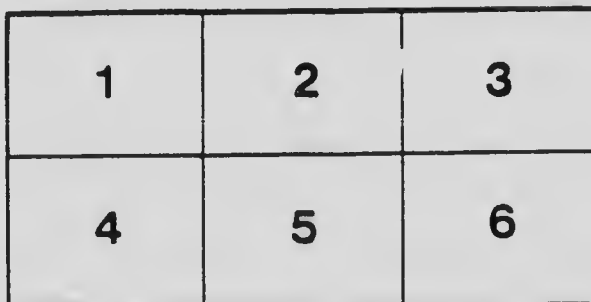
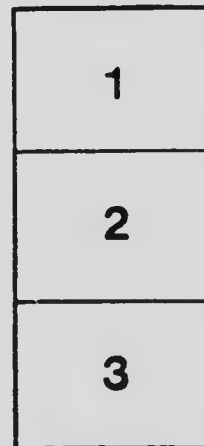
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O. H. M. S.

W. J. Gerald

Deputy Minister.

LABORATORY
OF THE
INLAND REVENUE DEPARTMENT
OTTAWA, CANADA

BULLETIN No. 201

Flavouring Extract of Vanilla.

LABORATORY
OF THE
INLAND REVENUE DEPARTMENT
OTTAWA, CANADA.

BULLETIN No. 201

Flavouring Extract of Vanilla.

OTTAWA, March , 1910.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I have the honour to hand you a report dealing with 77 samples, purchased throughout Canada, as Flavouring Extract of Vanilla, in December last.

The last examination of this article was reported in Bulletin No. 89 (Sept. 1903). That report showed, in 21 samples, the following variations of character:—

Vanillin	varies in amount from	0·012	to	0·268
Coumarin	“ “	0·016	“	0·160
Alcohol	“ “	5·470	“	50·470
Sugar	“ “	0·600	“	25·000

The present inspection (77 samples) indicates still greater variation:—

Vanillin	varies in amount from	0·000	to	1·419
Coumarin	“ “	0·000	“	0·186
Alcohol	“ “	1·300	“	52·800

The question, ‘What is wanted, or expected, when a purchaser demands Extract of Vanilla?’ seems pertinent.

The dried, fermented pod of *Vanilla Planifolia*, is an article of export from the West Indian Islands, Mexico, and some other localities. The extract of Vanilla is undoubtedly supposed to be prepared from this pod, by maceration in alcohol, with or without the addition of sugar and glycerin. The United States defines Extract of Vanilla thus:—‘Vanilla Extract is the flavouring extract prepared from the dried, cured fruit of *Vanilla Planifolia*, with or without sugar or glycerin, and contains in 100 cubic centimetres, the soluble matters from not less than 10 grammes of the Vanilla bean.’

The extractive matters referred to are, a crystallin substance known as *Vanillin*, and certain resins; and the characteristic flavour of genuine vanilla is due to the combined flavours of these extractives. Undoubtedly the vanillin contributes chiefly to this total flavour; but that it does not entirely account for it is manifest when we consider that the most highly valued beans are not those which yield the highest percentage of vanillin. Thus Tiemann and Harmann (1) found as follows:—

Mexican beans	1·69	p.c.	Vanillin
Bourbon	“	2·48	“	“
Java	“	2·75	“	“

Vanillin manufactured from Eugenol (and other sources) is an article of commerce, and is chemically identical with the vanillin from the bean. It is, however, quite evident that a solution of manufactured (Synthetic) vanillin, cannot be regarded as identi-

(1) Leach—Food Analysis, &c., p. 730.

eal with the flavouring extract, as above defined. The difference is one of *flavour* due to the presence of specific resins (and probably small amounts of undetermined matters) peculiar to the bean, and as essential to the production of a true vanilla flavour as the vanillin itself.

In order to ascertain what amounts of vanillin may be present in the genuine extract, Winton and Silvermann (2) prepared five extracts, according to the formula given in the U. S. Pharmacopœia, and obtained as follows:—

Grade of Bean.	Specific Gravity.	Vanillin.	Alcohol (wgt)	Total Residue.	Cane Sugar.	Non-sugar Solids
Mexican (whole).....	1·0159	0·125	37·96	22·60	19·90	2·70
" (cut).....	1·0146	0·065	39·92	23·10	19·20	3·90
South American (whole).....	1·0109	0·215	38·58	22·00	19·00	3·00
Bourbon (whole).....	1·0166	0·138	38·32	23·13	20·40	2·73
Tahiti (whole).....	1·0104	0·108	38·84	21·75	20·00	1·75

From this it appears that the vanillin in genuine extracts may vary from about 0·065 to 0·215. It seems fair to conclude that where the vanillin much exceeds 0·200 per cent in an extract artificial or synthetic vanillin has been used.

Coumarin is a substance which somewhat resembles vanillin in its flavour, but is quite distinct chemically. It is found in the Tonka bean, and is also prepared synthetically. On account of its cheapness it is much used to adulterate vanilla extract, and it will be seen that in the collection now reported it is present in 61 out of 77 samples examined. In one case it entirely replaces vanillin. The flavour of Coumarin is not identical with that of vanillin. Leach (3) says of it:—'The odour of Coumarin is more pungent and penetrating than that of vanillin, and in mixtures is apt to predominate over the milder and more delicate odour of vanillin.'

There can be no doubt that extracts containing coumarin should be required to announce the fact, either by explicit statement, or by being sold as compounds.

The use of alcohol is necessary in preparing the genuine extract of vanilla, not so much to dissolve the vanillin which is rendered more soluble by the presence of sugar, as in order to get the characteristic resins into solution. Hence, an extract cannot meet the requirements of a true vanilla bean extract, unless it contains from 30 to 40 per cent. of alcohol.

In the absence of any legal standard for Flavouring Extract of Vanilla, it is impossible for me to express an opinion upon the samples now reported. In a general way it may be said (1) that those containing notably more than 0·200 per cent. of vanillin are probably prepared from synthetic vanillin. There are some 31 samples of the present collection which fall in this class. (2) That those which contain less than 30 per cent of alcohol, are either not made from the bean, or are necessarily lacking in those odoriferous resins which are characteristic of the vanilla bean. Some 36 samples fall into this class. (3) Those samples which contain more than traces of Coumarin, are not, in the truest sense, extracts of vanilla, and should be sold as compounds. Some 58 samples must be thus classified.

The report now submitted, together with that published in Bulletin 89, will enable the public to judge of the character of Commercial Vanilla Extracts, and will also furnish material for the defining of this article, under section 26 of the Adulteration Act.

I beg to recommend the publication of this report as Bulletin No. 201.

I have the honour to be, sir,

Your obedient servant,

A. MCGILL,

Chief Analyst.

(2) Report Conn. Agr. Station—1901, 150.

(3) Foods, &c.,—p. 734.

BULLETIN No. 201—FLAVOURING EXTRACT OF VANILLA.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report. (Is not an expression of opinion).	RESULTS OF ANALYSIS.			
				Quantity.	Cents.			Vanillin per 100cc.	Commarin per 100cc.	Alcohol by Volume.	No. of Sample.

DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.

1900.	Dec.	6	Flavouring Extract of Vanilla.	41756	Nat. Drug. & Chem. Co., Halifax, N. S.	20	Vendors.	“Sovereign”		p. c.	p. c.	p. c.	p. c.
		7		41757	John Tobin & Co., Halifax, N. S.	45	Sheriff, Toronto.			.236	.038	52.8	41756
		7		41758	Chisholm & Co., Halifax, N. S.	30	J. E. Gass, Halifax, N. S.			.305	.028	33.1	41757
		7		41759	R. B. Seaton & Co., Halifax, N. S.	38	Robinson Mfg. Co., Toronto.			.272	.037	17.7	41758
		13		41740	S. L. Cross, Kentville, N. S.	30	Pure-Gold Mfg. Co. Toronto.			.238	.034	26.5	41759
										.073	.030	37.1	41740

DISTRICT OF PRINCE EDWARD ISLAND—THEO. MOORE, INSPECTOR.

Dec.	6	Flavouring Extract of Vanilla.	38601	C. C. Carleton, Souris.	6	oz.	Chamberland Med. Co. Toronto.	Chamberland's superior vanilla flavouring compound.		.476	.047	10.5	38601
	7		38602	J. C. Ferguson, Souris.	6		H. K. Wampole & Co., Perth, Ont.			.158	mil.	31.3	38602
	8		38603	E. T. Beardon, Charlottetown.	6		F. F. Dalley Co. Ltd. Hamilton.	Dalley's pure fruit extract.		.070	.043	30.6	38603
	9		38604	D. McKenzie, Kensington.	7 1/2		Imperial Extract Co., Toronto.	Sheriff's Imperial quintessence true vanilla.		.268	.029	37.5	38604
	10		38605	G. W. Warren, Summerside.	6		The Baird Co., Limited, Woodstock, N. B.	Baird's superior extra vanilla flavouring extract. Highly concentrated.		.241	.044	31.7	38605

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

Dec.	2	Flavouring Extract of Vanilla.	39613	Nat. Drug. & Chem. Co., Ltd., St. John, N. B.	3	bots	Vendors.	“Star” Brand		.084	.036	46.8	39613
	3		39614	Dearborn & Co., St. John, N. B.	3	75	“Dearborn” brand			.302	mil.	33.1	39614

" 8	"	39615-62	E. Harbour & Co., Ltd., John, N. B.	St. 3	60	"	" Acorn " brand	363	021	38 8	3915
" 20	"	39616	F. D. Sadler, Perth, St. John, N. B.	3	30	Nat. Drug & Chem. Co., St. John, N. B.	Standard extract of vanilla	078	031	26 6	39616
1910.	"										
Jan. 4	"	39617	The Sussex Mercantile Co., Ltd., Sussex, N. B.	3	60	Vendors	Vanilla pure concentrated extract.	093	012	41 9	39617

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

1909.	Dec.	1	Flavouring of Vanilla.	Extract	3	bots	30	W. Brunet & Cie, Quebec.	339	nil.	32 0	39682
"	"	1	"	"	3	"	30	J. B. Renaud & Co., Que- bec.	069	078	13 7	39683
"	"	1	"	"	3	"	30	Whitehead & Turner, Quebec	129	077	8 8	39684
"	"	1	"	"	3	"	30	Dr. Ed. Morin, Quebec.	354	085	33 8	39685
"	"	1	"	"	3	"	30	Unknown.	022	nil.	18 0	39686

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

Dec.	6	Flavouring of Vanilla.	Extract	3	"	30	Il. Jonas & Cie, Montreal.	Double strength.	039	nil.	17 7	39874
"	7	"	"	3	"	25	Lynnan's Ltd., Montreal.	"Standard" brand.	333	128	35 5	39875
"	9	"	"	3	"	30	G. A. Truss, Farnham.	"Bee" brand.	511	128	7 8	39876
"	20	"	"	3	"	30	Birks, Corner & Co., Mont- real.	Diamond brand concentra- ted.	579	063	1 3	39877
"	21	"	"	3	"	30	Integrity Mills, Toronto.	Double strength.	040	110	7 8	39878

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

Dec.	1	Flavouring of Vanilla.	Extract	3	bots	45	Vendors		292	101	15 4	40371
"	1	"	"	3	"	30	"Own Own" brand.		nil.	095	15 0	40372
"	1	"	"	3	"	25	"Hercules" brand		163	042	19 1	40373
"	2	"	"	3	"	40	Vendore	"Crown" brand.	564	048	33 8	40374
"	2	"	"	3	"	37	"		304	nil.	27 4	40375

BULLETIN No. 201—FLAVOURING EXTRACT OF VANILLA.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Inspector's Report. (Is not an expression of opinion).	RESULTS OF ANALYSIS.			
				Quantity.	Cents.		Vanillin per 100cc.	Camphor per 100cc.	Alcohol by Volume.	No. of Sample

DISTRICT OF OTTAWA—J. A. RICEY, INSPECTOR.

1909.							p. c.	p. c.	p. c.		
Dec.	3	Flavouring Extract of Vanilla.	42836 Goodall Bros., Ottawa.	3	60	McLaren's, Ltd., Hamilton.	" McLaren's "	'089	050	50.6	42836
"	4	"	42858 Wm. York, Ottawa.	3	75	H. N. Bate & Sons, Ottawa.	" Sheriff's "	'272	'030	37.4	42858
"	6	"	42860 W. B. Graham, Ottawa.	3	75	McLaren's, Ltd., Hamilton.	Labelled McLaren's true vanilla.	'145	'043	36.8	42860
"	14	"	42862 Jas. L. P. Sanders, Kemptville.	3	75	Davis & Lawrence Co. Ltd., Montreal.	" Davis & Lawrence "	'174	nil.	40.8	42862
"	16	"	42864 J. A. Gremmell, Smith's Falls.	3	30	Unknown.	Labelled "Alexandra" German Eckert & Co.	'062	'084	15.3	42864

DISTRICT OF KINGSTON—JAS. HOGAN, INSPECTOR.

Dec.	1	Flavouring Extract of Vanilla.	42772 R. Templeton, Belleville.	6	35	Vendor.		'087	'041	32.7	42772
Nov.	20	"	42773 C. S. Promise, Kingston.	6	50	"		'206	nil.	45.4	42773
"	30	"	42774 N. C. Polson, Kingston.	6	35	"		'251	nil.	49.6	42774
Dec.	1	"	42775 W. H. A. Scoble, Cobourg.	6	20	"		'549	'073	1.8	42775
"	1	"	42776 H. Mitchell, Port Hope.	6	50	"		'722	'101	32.4	42776

DISTRICT OF TORONTO—H. J. DAGGER, INSPECTOR.

Dec.	17	Flavouring Extract of Vanilla.	41431 Imperial Cocoa & Spice Co., Ltd., Hamilton.	3	35	Vendors.		'313	Nil.	21.5	41431
"	17	"	41432 Geo. E. Bristol & Co., Hamilton.	3	30	Imperial Spice Co., Ltd., Hamilton.	Red Feather quality flavouring extract. Labelled Vanilla Empire triple extract.	'117	'042	4.7	41432

BULLETIN No. 201—FLAVOURING EXTRACT OF VANILLA.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report. (Is not an expression of opinion).	RESULTS OF ANALYSIS.			
				Quantity	Cents.			Vanillin per 100cc.	Coumarin per 100cc.	Alcohol by Volume.	No. of Sample

DISTRICT OF MANTOBA —A. C. LARIVIERE, INSPECTOR.

1909.															
Dec.	6	Flavouring Extract of Vanilla.	39821	Blue Ribbon Mfg. Co., Winnipeg 3 bots.	50	Vendors.....	"Blue Ribbon" extract.....	p. c.	Nil...	43.6	39821				8
"	6	"	39822	Campbell Bros. & Wilson, Winnipeg.	40	"	"Royal Shield" extract.....	"	220	0.40	39822				
"	7	"	39823	The Dyson Co., Winnipeg.	65	"	"Red Cross" extract.....	"	1.317	0.07	39823				
"	7	"	39824	Gold Standard Mfg. Co., Winnipeg.	45	"	"Gold Standard" extract.....	"	174	Nil...	39824				
"	7	"	39825	The White Star Mfg. Co., Winnipeg.	30	"	"White Star" extract.....	"	0.083	0.114	39825				

DISTRICT OF CALGARY —R. W. FLETCHER, INSPECTOR.

Dec.	10	Flavouring Extract of Vanilla.	43626	L. E. Cochrane, Medicine Hat.	3	bots.	Gold Standard Mfg. Co., Winnipeg.	p. c.	Nil...	33.8	43626				
"	10	"	43627	H. H. Ireland Co., Medicine Hat	3	"	1.05 McLarens Ltd., Hamilton.	"	110	0.64	43627				
"	10	"	43628	R. Dunn, Medicine Hat.	3	"	Gold Standard Mfg. Co., Winnipeg.	"	191	0.12	43628				
"	17	"	43629	Copas & Emerson, Calgary.	3	"	G. F. Sutton Sons Co., London, Eng.	"	264	Nil...	43629				
"	17	"	43630	W. A. Georgeason Co., Ltd., Calgary.	3	"	Vendors.....	"	188	Nil...	43630				

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

13	Dec.	9	Flavouring of Vanilla.	Extract	37788	Herbert Moore, New Westminster.	3 tobs.	50	Empress Mfg. Co., Vancouver.	128	.080	25 6	37788
85	"	9	"	"	37789	A. & D. DesBrisey, New Westminster.	3 "	75	Young Bros.	1 419	.137	15 7	37789
2	"	9	"	"	37790	A. Lilly, Vancouver.	3 "	75	Pure Gold Mfg. Co.	.089	.086	37 5	37790
	"	13	"	"	37791	H. A. Edgett Co., Vancouver.	3 "	40	Climax Extract Co.	.056	.086	17 3	37791
	"	13	"	"	37792	(Geo. Wagg, Vancouver.	3 "	40	German, Eckert Co., London.	.059	.057	21 3	37792

DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.

Dec.	10	Flavouring of Vanilla.	Extract	41594	Windsor Grocery Co., Victoria, B.C.	3 tobs.	75	Pure Gold Mfg. Co., Toronto.	.086	.044	37 8	41594
"	10	"	"	41595	The Saunders Grocery Co., Victoria, B.C.	3 "	75	Sherriff, Sherriff's Imperial quintessence of true vanilla.	.283	.024	36 1	41595
"	13	"	"	41596	Acton Bros., Victoria, B.C.	3 "	75	Empress Mfg. Co., Vancouver, B.C.	.136	.053	28 3	41596
"	14	"	"	41597	R. Erskine & Co., Victoria, B.C.	3 "	75	Pioneer Coffee Mills, Victoria, B.C.	1 088	Nil.	26 5	41597
"	15	"	"	41598	W. A. Jameson Coffee Co., Victoria, B.C.	3 "	60	Empress Mfg. Co., Vancouver, B.C.	.066	.066	18 8	41598

