Genuine and Spurious Rums

By

Rafael Arroyo, Ch.E.,S.E.

A RAPID method by which a given sample of commercial rum may be declared genuine or spurious has not yet been developed. Even when applying extensive, elaborate, and complicated procedures, doubt often remains as to what the final judgment should be. The writer has developed a rather simple method, which, although incapable of ascertaining in a definite, unmistakable way, the genuiness or spuriousness of a given sample, will establish a very sound reason for further investigation in suspicious cases. The method is based upon three simple determinations, viz.: (1) extract in 100 milliliters of the rum sample; (2) direct proof of sample; (3) proof of sample after distillation.

In the course of his experience as research worker, consulting chemist, and fermentation technologist in the field of rum manufacture, the writer has had occasion to observe the relation existing in different rums among the content of extract and the proof of the commercial product before and after distillation of the given sample. It has been observed that genuine rums, whose extract content has entirely been derived from the staves of the aging barrel, will show but little difference in their degrees of proof before and after distillation of the sample. Moreover, it has also been found that the difference in degree proof between the undistilled and distilled samples is not directly proportional to the amount of extract found. This fact shows that the effect exercised by the content of extract on the difference of proof between that of the sample as such, and its distillate, is influenced not only by the amount of extract present, but also by the nature and composition of the extractive matter. Therefore, in the case of genuine rums, the degree proof at which the rum is barrelled for aging, the kind and size of barrel used, and the curing process to which these barrels were submitted previous to

their filling with the spirits to be aged, will have great influences on the relative amounts and natures of the extractive matter to be found later in the cured product. The other factor will be the period of aging allowable in different cases. But, as stated before, in all cases, when the rums belong to the genuine class, the differences between direct proof and proof after distillation of the sample will be small.

The picture is altogether different when dealing with spurious rums; that is, rums whose aroma and flavor, and the whole or a great part of the extract content have been artificially imparted. In these cases of artificially concocted commercial rums, almost without exception, the differences between the direct proof and proof after distillation of the samples, are quite perceptible, amounting in extreme cases to several degrees. Also, these differences are almost always directly proportional to the amount of extract found in the different samples analyzed. This difference of behavior be- Averages ... tween the two classes of rums mentioned above, gave rise to the method of differentiation under discussion, which consists in running duplicate determinations of the amount of extract found in 100 milliliters of the sample, expressing the average result in terms of milligrams per 100 milliliters of spirit; then taking the degree proof of the sample as received, and again after its distillation, using a pyknometer for the determinations of alcoholic concentration in both cases. This work must be carried in duplicates, and an average value accepted only after satisfactory checks are obtained.

Certain precautions must be followed for accurate results and reliable conclusions. For instance, the analyst must see that the temperature of the sample is accurately taken before its distillation, and that the distillate is brought to this same temperature be-

fore it is used for determination of alcoholic strength, or proof. The distillate should also be brought to exactly the same volume of the original sample submitted to distillation. The analyst should be certain that no losses of alcohol are likely to occur during the period of distillation, and (Continued on page 27)

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	TAHLE	: 1	
	One Year O	kl Rums	
	Extract	Degr	ee Proof
	(Mgs. per	0	After
	100 ml.)	Direct	Distillation
• •	100.20	94.24	94.84
• •	139.20	95.00	95.60

3	١,	ġ	,	6		,	 145.70	89.15	89.50
+		١,					161.10	91.60	91.76
5				.,			162.00	90.14	90.32
6							168.80	87.00	87.16
7		,					104.40	94.24	94.40
8							151.90	92.72	93 20
9							207.70	93 22	93.30
10							211.00	137.06	137.36
rr	41	1	c	\$	•		158.20	96.44	96.74

							I AIL	2 2	
							Two Years (Old Rums	1
							Extract	Degr	ec Proof
114	q.	ıÌ	e				(Mgs. per		After
Ne.	i,						100 ml.)	Direct	Distillation
1					,	,	169.00	89.50	90.40
2							 185.60	89.14	90.04
3							200.40	92.42	93.00
4							204.00	92.08	92.60
5							212.00	90.40	91.36
6							266.80	90.78	91.78
7							226.80	90 78	91.78
8							269.60	88 62	89.31
9							265.20	85.36	86.26
0	1						282.00	90.92	91.68
er	0	1;	-	5			228.14	90.00	90.82

TABLE 3 Three Years Old Rums

	Extract	Degree	Proof	
Sample	(Mgs. per		After	
No.	100 ml.)	Direct D	istillation	
1	209.00	91.90	92.56	
2	216.80	87.00	89.00	
3	262.80	89.62	90.65	
4	312 40	94.30	95.82	
5	432.00	96.30	97.40	
6	172.20	88.88	90.48	
verages	817.53	91.32	92.65	
Vote: The r	ums whose	analyses are	mixen in	
ables 1 to 3.	inclusive.	were ared in	5 gallon	

oak kegs. The kegs were cured before filling with the spirits.

		T.	HLE	4			
mmercia) L	Runs	wof	ith	no	Guarantee Period	as	to

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	Extract	ct Degree Proof		
Sample No.	(Mgs. per 100 ml.)	Direct	After Distillation	
1	503.00	81.90	87.80	
2	518.00	88.50	91.30	
3	555.50	85.10	88.30	
4	626.00	81.50	87.80	
5	639.60	98.00	100.00	
6	692.00	81.90	88 50	
7	927.20	85.00	89.10	
8	1,208.80	79.60	86.00	
9	1,451.20	77.81	86.00	
10	2,075.00	71.20	86.00	
Averages	919.63	83.85	89.08	

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Walter C. Smith, the technologist, who says: "A recent news dispatch has prompted a discussion as to why Hawallan molasses cannot be converted into motor fuel, and thus relieve the shortage of gasoline. The Hawaiian sugar industry has long been aware that motor fuel can be produced from alcohol, and twenty years ago two island plantations manufactured it for use in their automotive equipment. Gradual reduction in the price of gasoline and increase in the value of molasses forced the discontinuance of alcohol manufacture. Before the war, industrial alcohol sold at about 40 cents a gallon. The price has now increased to 65 cents. Because molasses, as produced by the sugar industry, is one of the best and most economical sources of alcohol, there is a great demand for every ton of molasses that can be shipped to the mainland. Current prices for molasses would produce a cost of 25 to 30 cents a gallon of alcohol for the raw material alone. The final selling price would have to be from 45 to 50 cents a gallon, plus taxes. Alcohol is one of the most urgently needed war munitions, and for this reason the diversion of alcohol for motor fuel purposes would rob the main war effort of one of its most vital materials." Interest in alcohol production in the islands has been halted by the War Production Board's announcement that no further priorities would be granted for the construction of new plants, either in Hawaii or the mainland, as present mainland facilities were adequate

A new industry for utilizing sugar cane by-products is the making of hats from sugar cane and bamboo. The idea was started by John Wilson, Hawaiian social security director. In fact, the idea was first advanced by Mr. Wilson some years ago, as a means of employment for those on relief rolls, and classes were established to teach relief clients. The idea did not catch on well then, but with the present shortage of materials and shipping facilities it has been revived and a shop has been opened in Honohalu, which will be stocked with the distinctive-looking "papales", as the hats are called.

AUGUST · 1943

The spirit of Filipino plantation workers in Hawaii found expression recently in a statement by Santiago Ramos, a mill man and mechanic at Kaluku, where he has been employed for the past fifteen years, and hasn't lost a day's work since December 7, 1941. A cheerful, smiling chap, "Ago" is active in community affairs, a contributor to the blood bank, the Red Cross and the United Welfare, and a sergeant in the Hawaii Scouts, and has put better than \$100 in war bonds every month since Pearl Harbor. He expressed himself as follows: "I would like to remind everybody, but mostly my countrymen in Hawaii, to work every day and save plenty for bonds to help beat the Axis. How would you feel if this year the flag of the Philippines would fly once more over our native land, and all our countrymen would be free?"

Japanese plantation worker with similar ideas is Tokojiro Suzuki, who came to Hawaii thirty-six years ago and has been employed twenty-two years at Kahuku. Now sixty-one, he works every day in the cane field and then goes home to work in his garden, where he grows enough vegetables for his family and some to spare. All of his six children have also been employed on the plantation at one time or another, and have made good records. Two sons recently voluntcered with the A.J.A.'s. He believes that everyone should work as hard as possible so that the war may be won as quickly as possible, so that his sons and other people's sons can return to a peaceful Hawaii.

The annual meeting of the Hawaiian Sugar Technologists will not he held this year. The technical men feel that every day's work is needed and that the meetings can be postponed for the duration. The Hawaiian Sugar Planters' Association will hold a meeting, but it will be on the same plan as last year's. There will be no formal program and not all of the plantation managers will be present at one time. Department heads of the experiment station will probably be sent to the outside islands to meet with the local island associations for the discussion of developments at different times during the year.

J. N. S. Williams, formerly technical advisor for Theo. H. Davies & Company, now retired, has received the honorary degree of Master of Science from the University of Hawaii, his citation reading: "Designer and builder of factories for the processing of sugar cane, investigator of the economic possibilities of the bagasse of sugar cane, constructor of railroads, bridges and harbor improvements, public servant whose contributions are permanently reflected in the social progress and high standard of living in Hawaii, member of the House of Nobles under the monarchy, member of the Public Utilities Commission and the Board of Health after the Territory was established, a man with scientific interest of such intensity that when he was already four years beyond the scriptural threescore and ten he enrolled in the University of Hawaii to pursue the study of organic chemistry, a citizen of forceful character, intelligent, thoughtful and un-flagging spirit." Mr. Williams, at the age of eighty-six, is still keenly interested and active in the work of the Canec factory.

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that the distillation is properly executed. Then, from a consideration of the degree of difference in the respective proofs of the given sample, and the amount of extract found, the probable genuiness or spuriousness of the sample under consideration may be ascertained. In cases of doubtful results, recourse must be had to other more elaborate and complicated methods of differentiation, including fractional distillation in the proper fractionating unit, thorough investigation of the chemical composition of the extract obtained, and judgment of taste and bouquet by an experienced rum taster. The tables accompanying show these relations in the cases of (1) one year old; (2) two years old; (3) three years old genuine rums; and (4) a set of commercial rums picked up at random, foreign and domestic.

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