TABLE I

Peak Area Ratios for Standard and Unknown Olive Oils

Sample	Unsap method[a]	Peak area ratio I/II	I/III
Authentic Virgin 1	Conventional	∞	16
Authentic Virgin 1	Filtration	∞	82
Authentic Refined 1	Conventional	36	6.3
Authentic Refined 1	Filtration	27	7.6
Authentic B-residue 1	Conventional	6	1
Authentic B-residue 1	Filtration	2.6	0.8
Authentic Virgin 2	Filtration	139	48
Authentic Refined 2	Filtration	27	13
Authentic B-residue 2	Filtration	5	1.5
Authentic Virgin 3	Filtration	124	20
Authentic Refined 3	Filtration	25	8.3
Authentic B-residue 3	Filtration	5.2	2
Unknown A	Filtration	14	2.5
Unknown B	Filgration	32	10
Unknown C	Filgration	30	9
Unknown D	Filtration	66	6
Unknown E	Filtration	32	7
Unknown F	Filgration	43	14

[a]Conventional = AOCS Method; filtration = NRRC-designed method.

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Stabilization of Rice Bran with Sodium Metabisulfite

Sir:

The rapid rise of free fatty acids in fresh rice bran is well known. There are methods to control this activity, which has been attributed to the presence of lipase enzyme in rice bran. Methods that are used are cold storage and heat stabilization, by which the lipolytic activity in bran is either immobilized or destroyed. Both methods have their merits and limitations. A third alternative, namely, chemical stabilization of rice bran, has been tried. We selected sodium metabisulfite which is known to be a good preservative used in food industries. It is also used as a disinfectant and an antiseptic. Thorough mixing of rice bran and chemical is essential, and for this purpose a laboratory and a pilot plant method were devised. In the laboratory, trials were carried out by mixing fresh rice bran and sodium metabisulfite with a mortar and pestle. The optimum level of the chemical that is effective in stabilizing the bran was found to be 2% the weight of bran. The additive-treated sample and the original untreated rice bran (control) were stored in stoppered glass bottles simultaneously. Samples were drawn from both bottles periodically; oils were extracted and free fatty acids of the oils were determined by official AOCS Methods. After observing the effectiveness of the chemical, a more vigorous and continuous mixing device was tried in scaled up studies. Here an expeller was selected for effecting a thorough and intimate mixing of bran with the chemical. The feed was well mixed while being propelled forward under pressure through worm helicals. Twenty-five kg of fresh rice bran admixed with 500 g of sodium metabisulfite was run cold through the screwpress. Similar quantity of fresh rice bran without additive was treated the same way. The two treated samples were stored simultaneously in jute bags. Samples were drawn periodically, oils were extracted, and free fatty acids of oils determined.

It was found that the free fatty acid in oils from untreated rice bran stored for 0, 10, 20 and 30 days were 2.2, 12, 20 and 24, and the corresponding figures for chemically treated rice bran were 2.2, 2.5, 2.5 and 3.5, respectively. It would appear that chemical treatment had immobilized lipase activity in the bran and stabilized it for safe storage over a period of one month. It was also observed that the oil yield from bran was not reduced by treatment with the chemical. The low ffa oil obtained from the additive-treated rice bran could be subjected to the usual refining processes and the refined oil thus obtained would be suitable for edible purposes. Work needs be done on the utility for extracted meal obtained from chemically treated bran.

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