

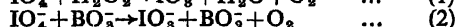
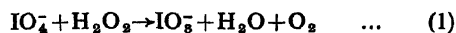
### Titrimetric Determination of Hydrogen Peroxide and Sodium Perborate by Periodate

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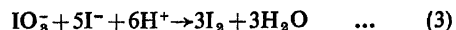
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HUCKABA and Keyes<sup>1</sup> determined hydrogen peroxide with permanganate in acid medium. Willard and Young<sup>2</sup> obtained good results with ceric sulphate. Perborate reacts with potassium permanganate and ceric sulphate in the same way as hydrogen peroxide. Schwicker<sup>3</sup> reduced periodate to iodate in alkaline medium with hydrogen peroxide. It has been observed in the present investigation that if periodate is taken in excess, hydrogen peroxide and sodium perborate are quantitatively oxidised.



Periodate can be selectively masked with molybdate whereas iodate remains unaffected<sup>4</sup>. The same masking effect has been utilised in the determination of iodate formed by periodate oxidation of hydrogen peroxide and sodium perborate (eq. 1 and 2). The reaction products in each case are treated with potassium iodide in presence of chloroacetic acid buffer after masking periodate with molybdate :



Since the iodate formed is stoichiometrically related to the amount of the substance taken, the liberated iodine can be represented by



The titration of the liberated iodine makes the method highly sensitive and suitable for the determination of small amounts of the substances.

### Experimental

All the chemicals used were of analytical grade commercially available. Solutions of hydrogen peroxide and sodium perborate were prepared by dissolving these substances, in distilled water and standardised iodometrically.

Buffer solution was prepared by dissolving 25 g of chloroacetic acid in 70 ml distilled water and its pH adjusted to 2.9 with a strong solution of sodium hydroxide.

2 M molybdate solution was prepared by dissolving ammonium molybdate in hot distilled water.

### Procedure :

A suitable aliquot of the substance to be determined, was pipetted into an Erlenmeyer flask containing an excess of potassium metaperiodate (50-100

mg). The contents of the flask were shaken for 2-3 min and 10 ml of 2 M ammonium molybdate followed by 10 ml of chloroacetic acid buffer were added. 1 g of potassium iodide was then added and contents of the flask thoroughly mixed. The liberated iodine was titrated with 0.1 N sodium thiosulphate solution. The results are given in the Table. 1

TABLE 1 DETERMINATION OF HYDROGEN PEROXIDE AND SODIUM PERBORATE

Taken	Hydrogen Peroxide (mg)		Error
	Found		
4.72	4.70		-0.02
5.50	5.50		0.00
6.57	6.55		-0.02
7.08	7.08		0.00
7.99	8.02		+0.03
8.96	9.01		+0.05
	Sodium Perborate (mg)		
20.66	20.66		0.00
24.10	24.23		+0.13
27.54	27.54		0.00
31.52	31.37		-0.15
35.46	35.45		-0.01
39.40	39.53		+0.13

### Acknowledgement

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### Study of Cucumis melo utilissimus Seed Oil

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**CUCUMIS MELO UTILISSIMUS** Duthie and Fuller known as *Kakri* in hindi belongs to the family cucurbitaceae. Seeds are cooling, nutritious, diuretic and used in painful micturition and suppression of urine<sup>1</sup>. It is cultivated in many parts of India, specially in upper India and particularly in Uttar Pradesh and Punjab<sup>2</sup>. The present work deals with the chemical investigation of the seed oil of *Kakri* which has not been reported so far. Taking into account the medicinal use of the seed of the plant information on general characteristics and fatty acid

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