treatment. The average recovery in three experiments was 91 per cent.

The advantages of this method are the good degree of purity and concentration of the final product and the short time required for the process, with subsequent reduction in radiation hazards. With the filters and solutions prepared in advance, the iodine-131 in a 24-hr. urine specimen can be recovered in less than two hours.

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A Rapid Routine Method for the Estimation of Nicotine in Tobacco

The nicotine content of tobacco varies between wide limits, depending on the species studied. With the view of estimating the nicotine content in tobacco species grown in India, particularly in those of low nicotine content obtained in grafting experiments, a rapid semi-micro method of distillation followed by a spectrophotometric method of estimation have been developed.

Nicotine is distilled by a modification of Griffith and Jeffrey's method[1], wherein soda-lime is used instead of magnesium oxide. 0·5 gm. of powdered and sampled tobacco (cured) is taken, and the nicotine liberated in five minutes by superheated steam under pressure in the presence of soda-lime is collected in dilute hydrochloric acid and made up to a known volume. An aliquot of the solution appropriately diluted to fall within the range of Beer's law is taken for spectrographic analysis. The characteristic absorption band of nicotine in acidified water at 2590 A. region is recorded with a Spekker ultra-violet photometer and an intermediate quartz spectrograph. The specific extinction coefficient defined as spectral density referred to a cell-depth of 1 cm. and concentration of 1 gm. per litre of nicotine solution at 2590 A. was found to be 34·5, as against 34·3 obtained by Willits *et al.*[2]. However, in the samples of tobacco studied, no background correction as suggested by the earlier investigators was found necessary. Hence the extinction values recorded at 2590 A. could be used directly for the calculation of the nicotine content in the sample.

The extinction coefficient was found to be independent of the strength of acid used (N/5–N/80 hydrochloric acid), the values obtained for a sample varying only between 0·55 and 0·56. The results obtained by this method and the standard A.O.A.C. method agreed very closely. When compared with the A.O.A.C. method, which takes 24–48 hr., this method gives results well within an hour, the error not exceeding ± 2·5 per cent on the nicotine content present in the sample studied. With this technique, it is possible to estimate nicotine down to 1 p.p.m. in solution. Almost all the nicotine in a sample, irrespective of the total amount present, could be recovered in about five minutes by this semi-micro method. For longer times of distillation studied, the variations in the nicotine recoveries are small and are within the experimental errors.

Comparison of the Semi-Micro and the Standard Methods of Distillation

Sample No.	Nicotine content (per cent) Semi-micro method	Standard method
1	3·86	3·86
2	4·14	4·16
3	4·05	4·09
4	3·91	4·10
5	4·14	4·10
6	3·19	3·19
7	3·66	3·89
8	3·24	3·24

The spectrophotometric estimation of the recoveries of nicotine for different samples of tobacco, both by the semi-micro and standard methods of distillation, are shown in the accompanying table.

It can be seen that there is a fairly good agreement between the two methods of distillation studied. Thus a combination of the semi-micro method of distillation and the spectrophotometric method of estimation provides a rapid and reliable technique for the routine estimation of nicotine in tobaccos. Further details of the method will be published elsewhere.

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Effect of Adenosine Triphosphate on the Light-Scattering of Actomyosin Solution

It is well known that the viscosity[1], the double refraction of flow[2] and the light-scattering[3] of actomyosin solution are changed by the addition of adenosine triphosphate. Many investigators have shown that the course of the viscosity change can be divided into three phases[4]: the viscosity of actomyosin solution drops rapidly after the addition of adenosine triphosphate (first phase), reaches a constant value (second phase) and then recovers gradually (third phase). But the measurement of viscosity is not considered to be suitable for the kinetic analysis of these changes, because it takes twenty to thirty seconds for each determination, while the whole change is completed within a few minutes. Therefore theories hitherto suggested for explaining the mechanisms of these phenomena have little experimental support.

We have succeeded in measuring the change of the intensity of the scattered light due to actomyosin solution upon the addition of adenosine triphosphate. The measurements were carried out with an electron multiplier–electromagnetic oscillograph (or μ-amperemeter) system.

The actomyosin used was a purified 'myosin B'[1], prepared from the hind-leg muscle of rabbits. Adenosine triphosphate extracted from acetone-dried rabbit muscle was isolated by Kerr's method[5] and was used as the sodium salt; the measurements were carried out at *p*H 6·4, at 20° C. and in 0·5 *M* potassium chloride.

First phase. The intensity of light-scattering of actomyosin solution decreases rapidly after the