Estimation of total titratable acidity in urine

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**Aim:** To estimate the titratable acidity in urine.

**Principle:** The titratable acidity of urine is expressed in terms of the ml of standard alkali necessary to bring the urine from its original pH to phenolphthalein end point pH 8.5 or 9 by the use of the phenolphthalein indicator.

The total acid excreted per day under normal conditions by normal adults varies from 200 to 500 ml of 0.1N NaOH. Under meat diet, active gastric digestion, renal diseases, fasting and severe diabetic acidosis values may go up to 1500 ml. The acidity of the urine decreased under vegetable diet.

**Requirements:**
1. 0.1 N NaOH solution.
2. 1% Phenolphthalein solution.
3. Potassium oxalate.

**Procedure:**
1. Take 25 ml of urine in a conical flask.
2. Add 5 gm of freshly powdered potassium oxalate and 0.5 ml of phenolphthalein solution to the flask containing urine sample.
3. Shake vigorously and titrate immediately with 0.1 N NaOH solution from a burette till a permanent pink colour appears.
4. Repeat the experiment thrice and take the mean of the three readings for calculation.

**Calculation:**

\[
\frac{25}{a} = \frac{b}{x}
\]

Therefore

\[
x = \frac{a \times b}{25}
\]

Where, 
- \(a\) = ml of 0.1N NaOH solution used
- \(b\) = volume of urine excreted in 24 hours *i.e.*, 2000 ml per day under normal conditions.
- \(x\) = Total acidity of the 24 hour urine specimen.

The result is expressed as ml of 0.1 N NaOH.

**Report:** The given urine sample required _____ ml of 0.1 N NaOH.