A study of Oxytetracycline hydrochloride has been conducted by Gagandeep Kaur Grewal, Department of Engineering Chemistry, Lakshmi Narain College of Technology, Indore, M.P. The study aimed to determine the potency of antibiotic content in the sample using biological means. The assay value of Oxytetracycline hydrochloride was found to be 101.92%, which is within the reported limit of 98% - 105%. The study also highlighted the role of Oxytetracycline hydrochloride in inhibiting the growth of various microorganisms, including bacteria and protozoa. The material and methods section describes the preparation and use of Oxytetracycline hydrochloride in antibiotic assays, including the preparation of standard solutions and the incubation conditions for the assay. The results indicate the drug's effectiveness in inhibiting microbial growth. The study concludes with the importance of Oxytetracycline hydrochloride as an antibiotic with broad-spectrum activity and its potential therapeutic applications.
Sample preparation
For bulk feed supplement (powders) study, accurately weighed amount of sample equivalent to 200 mg of oxytetracycline activity was transferred to a 100ml volumetric flask with 50ml of 0.1N HCL solution it was sonicated for 20 minutes. the volume was made upto 100ml using with 0.1N HCl and shaken well.It was allowed to settle for 20 minutes.The supernatant liquid was diluted to 100ml with sterile purified water to give a final concentration of 1mcg/ml of oxytetracycline.

Test procedure
Six different standard solutions were prepared for plotting the standard curve by diluting 1mcg/ml of the standard preparation with sterile purified water as given in table 2.

Table 2: Dillutions for test.

<table>
<thead>
<tr>
<th>Standard preparation (1mL)</th>
<th>Final volume with sterile purified water(1mL)</th>
<th>Standard concentration (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5</td>
<td>10</td>
<td>0.75</td>
</tr>
<tr>
<td>5.0</td>
<td>10</td>
<td>0.5</td>
</tr>
<tr>
<td>4.0</td>
<td>10</td>
<td>0.4</td>
</tr>
<tr>
<td>3.0</td>
<td>10</td>
<td>0.3</td>
</tr>
<tr>
<td>2.0</td>
<td>10</td>
<td>0.2</td>
</tr>
<tr>
<td>1.0</td>
<td>10</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Arbitrarily two samples of median concentrations were also prepared by diluting the solution of the “sample preparation “with the purified water as shown in table 3.

Table 3: Median concentration of sample

<table>
<thead>
<tr>
<th>Sample preparation</th>
<th>Final volume</th>
<th>Sample concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0ml</td>
<td>10ml</td>
<td>0.4 mcg/ml</td>
</tr>
<tr>
<td>3.0ml</td>
<td>10ml</td>
<td>0.3mcg/ml</td>
</tr>
</tbody>
</table>

1ml of each concentration of the standard as well assolution and sample solutions was taken in test tubes in duplicate. To these test tubes, 9ml of test medium previously seeded with the test organism was added to 2 control tubes one containing the inoculated culture medium and the other containing uninoculated culture medium were subjected to incubation at 37°C ± 0.1°C for 3-4 hours.

Subsequently, 0.5 ml of formalin was added to each test tube.the samples, thus prepared were used for absorbance studies at 530 nm in spectronic-20 colorimeter using inoculated sample as a reference.the results have been plotted in figure 1 as absorbance (AU) versus concentration (µg/ml) to get the dose response curve at wavelength of 530nm by UV-Vis spectrophotometer(id no 004).

The potency factors were calculated using expression:

\[
\text{Potency factor} = \frac{\text{std dil. } \times \text{ conversion factor}}{\text{Sample dilution}}
\]

And assay value by the expression:

\[
\text{Assay value} = \frac{\% \text{ potency } \times \text{ potency factor}}{100}
\]

Conclusion
Attempts have been made to assess the efficiency of drug and its antimicrobial activity. Microbial assay study has been carried out using turbidometric method. This is due to the matter of fact that the observed turbidity does not interfere with the drug efficiency. It is based on comparison of the inhibition of growth of micro-organism. This has been accomplished by measuring the concentration of antibiotics under study using the reference. The inhibition of growth of test microorganism in a standard solution of antibiotics has been determined by measuring the light transmittance using Spectrophotometer. The potency of drug has been found to be 101.95% which falls well within the reported range of 95%-105%. It is obvious that the test drug does inhibit the growth of micro-organism. The drug is also reported to exhibit its activity against the gluconate oxidation by *Escherichia Ecoli*.[7, 10] it is clearly seen from standard curve that the test drug absorbs the radiation corresponding to .500AU which reflects its ability to inhibit the growth of micro-organism.as a consequence turbidity of test samples found to decrease as per expectation.

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7. Marshan, (1933), Standard method for the Examination of dairy product, American Public Health Association Washington D.