AISSCE – 2020

CHEMISTRY PROJECT WORK

NAME :- SUMIT KR. SINGH

CLASS :- XII SCIENCE

ROLL NO. :-

TEACHER'S CERTIFICATE

THIS IS CERTIFY THAT MASTER SUMIT KR. SINGH OF CLASS XII SCIENCE OF DAV PUBLIC SCHOOL HAS BEEN UNDER MY SUPERVISION WHILE WORKING ON THIS PROJECT.

I CERTIFY THAT THIS PROJECT IS UPTO MY EXPECTATION AND AS PER THE GUIDELINE SET BY CBSE.

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher ***Mr. SUMANTA BHAKAT*** *as well as our principal* ***Mr. D.R. MOHANTI*** *who gave me the golden opportunity to do this wonderful project, which also helped me in doing a lot of Research and i came to know about so many new things I am really thankful to them.*

Secondly i would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

DAV PUBLIC E.C.L. SCHOOL
PANDAVESWAR

SUMIT KR. SINGH
XII SCIENCE
ROLL NO. :-

PRINCIPAL'S CERTIFICATE

THIS IS CERTIFY THAT SUMIT KR. SINGH OF CLASS XII SCIENCE OF DAV PUBLIC SCHOOLHAS BEEN STRICT SUPERVISION WHILE WORK ON HIS PROJECT WITH UTMOST CARE AND ATTENTION.

I CERTIFY THAT THIS PROJECT IS SATISFACTORY IN EVERY RESPECT OF THE GUIDELINES SET BY CBSE AND IS PREPARED UNDER THE GUIDANCE AND VIGILANCE OF CHEMISTRY TEACHER MR. SUMANTA BHAKAT

PRINCIPAL

MR.(D.R. MAHANTY)

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Introduction

It is well known that the food we take undergoes a series of complex reaction within the body which consitutes what we call digestion and metabolism. These reaction are catalysed by enzymes which are spec -ific in their action and able to function properly only when the PH of the medium is within a specific range.

Some enzymes require mildly alkaline medium while others operate only in weakly acidic conditions . Among the latter category of enzymes are the enzymes which control the digestion of proteins present in the food as it reaches the stomach. In the stomach dil . HCL is secreted & it provides mildly acidiic contion required for the functioning of proteins digesting enzymes in the stomach. However sometimes the stomach begins to secrete an excess of HCL . This condition is called gastric hyper acidity and is because by over eating and highly spiced food. This inferes in the normal digestion and leads to acute discomfort due to indigestion.

Now a days there are available many commercially products known as antacids which neutralise the excess of HCL secreted in the stomach. The action of antacids is based on the fact that a base can neutralise acid forming salts and water.

An essential requirement of antacid is that it must not supply an excess of alkali which may lead to alkaline contions, thus making enzymes ineffective. This is achieved in the commercial antacids by incorporating other constituents which helps to keep the PH within an acidic range. These drugs counteract the acid secreted by the stomach mainly to provide symptomatic relief and a lesser extent to promote heealing.

Stomach keeps on empting itself and the action of antacids lasts only for a short while, irrespective of the dose taken. It is therefore,important to take antacids at frequent intervals. Commonly used antacids are Omez, Zintac, Ranikan, Reflux, Famtac and Aciloc.

Objective

This project aims at analysing of the commercial antacids to determine how much HCL of given normality they can neutralise.

EXPERIMENT

To analyse the given sample of commercial antacids by determining the amount of HCL the can neutralise.

REQUIREMENTS

BURETTES

PIPETTES

TITRATING FLASK

MEASURING FLASK

WEIGHT BOX

FRACTIONAL WEIGHT

SODIUM HYDROXIDE

SODIUM CARBONATE

HYDROCHLORIC ACID

PHENOLPTHALEIN

Procedure

1 Litre of approximetly N/10 HCL solution is prepared by dilution of 10 ml of the concentrated acid of 1 litre.

Similarly 1 Litre of approximately N/10 NaOH solution is made by dissolving 4.0 gram of NaOH.

N/10 Na_2CO_3 solution is prepared by weighing exactly 1.325gm of anhydrous sodium carbonate and then dissolving it in water to prepare exactly 0.25 litre of solution.

The HCL solution is standarized by titrating it against the standard Na_2CO_3 solution using methyl orange as indicator.

Simlarly NaOH solution is standarized by titrating against standarized HCl solution using phenolpthalein as indicator.

The various samples of antacids tablets are powdered and 1gm each is weighed.

A specific volume of standarized HCL is addded to each of the samples taken in conical flask. The acid should neutralize all the alkaline component of the tablet.

2 drops of phenolphthelein is added and the flask are warmed till most of the powder dissolves. The insoluble material is filtered off.

The heated solutions are cooled at first for same time, so that during the time of titration the water vapours do not go out.

This solution is titrated against the standarized NaOH solution, till a permanent pinkish tinge is obtained. The experiment is repeated with different antacids.

Standardisation Of NaOH Solution

Volume of given NaOH is 20ml.

S.No	Initial Reading	Final Reading	Volume of used Acid
01	0	6.4	6.4
01	6.4	13	6.6
03	13	19.6	6.6

Concordant Reading: 6.6

Applying Norality Equation

$$N_1V_1 = N_2V_2$$

(Acid) (Base)

$$0.1 \times 6.6 = N_2 \times 20$$

Normality of NaOH = 0.33

Standardisation Of HCl Solution

S.No	Initial Reading	Final Reading	Volume of used Acid
01	0	11.5	11.5
01	11.5	23	11.5
03	23	33	10

Concordant Reading: 11.5

Applying Norality Equation

$$N_1V_1 = N_2V_2$$

(Acid) (Base)

$$0.1 \times 20 = N_2 \times 11.5$$

Normality of NaOH = 0.174

Analysis Of Antacid Tablets

Weight of the antacid tablet powder 1.0 gm.
Volume of HCl soluttion added to 40ml.

Antacid	Volume of NaOH Solution used for neutralising unused HCl 1.0(ml)	Volume of HCl Solution used for neutralising 1.0gm of antacid
Omez	30.5	20
Zintac	40.0	20
Reflux	31.8	20
Ranikan	42.5	20
Famtac	47.5	20
Aciloc	49.0	20

CONCLUSION

The antacid for which the maximum value of neutralizing is more effective.

Observation in the above experiments reveal that the most effective among the common antacids that are used in this project is Omez.

Bibilography

Without following books it would have been impossible to reach at the conclusion of this project.

Here is the list of some books who helped me a lot throught the project.

COMPREHENSIVE PRACTICAL CHEMISTRY
By Dr. N.K. Verma, Dr. R. Vermany

MODERN'S ABC CHEMISTRY
By Modern Publisher