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Research Article

Comparative Study of Assay between Stanndared Paracetamol and Any Markated Product

Mr. Joydeb Acharjee*
*Pharmacist (Allopathy) Regional Institute of Pharmaceutical Science and Technology Abhoynagar Agartala Tripura.
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ABSTRACT
Background: Paracetamol (acetaminophen) is an acetanilide derivative with the molecular formula $C_8H_9NO_2$. It is one of the most commonly used drugs worldwide; Paracetamol has analgesic and antipyretic but not anti-inflamatory activity. Paracetamol is a widely used non-prescription medication and is available in several brands in the market which makes it difficult to select the safe and effective one.
Purpose: The study aims to establish the pharmaceutical equivalence between the branded paracetamol & standard paracetamol tablets and to justify the quality of branded paracetamol & standard paracetamol tablets
Methodology: The study involves the quantitative analysis of twenty Paracetamol 500 mg tablets, using Ultra Violet Spectrophotometric methods, in which the samples were dissolved in 0.1M sodium hydroxide solution and distilled water and their various absorbances determined at the wavelength (λmax) of 257nm. Quantitative estimation of Paracetamol carried out by UV-Visible spectrophotometric methods, by using standard absorptivity value (assay method given in Indian Pharmacopoeia vol-II)
Result: The percentage content sample was calculated by UV analysis methods using appropriate formulae and also determined whether or not they comply with standard specifications as per IP. The percentage content of paracetamol in different brands of paracetamol tablets was compared by IP Method.

Keywords: UV-Visible Spectrophotometry, Paracetamol Tablet, Standard Absorptivity Method, Indian Pharmacopoeia.

INTRODUCTION

Acetaminophen (paracetamol; N-acetyl-P-aminophenol) is an effective alternative to aspirin as an analgesic and anti-pyretic agent; however, its anti-inflammatory effects are much weaker. While it is indicated for pain relief in patients with non-inflammatory osteoarthritis, it is not a suitable substitute for aspirin or other NSAIDs in chronic inflammatory condition such as rheumatoid arthritis. Acetaminophen is well tolerated and has a low incidence of GI side effects. It is available without a prescription. Acute over dosage can cause severe hepatic damage, and the number of accidental or deliberate poisonings with acetaminophen continues to grow. Chronic use of less than2 g/day is not topically associated with hepatic dysfunction. (Goodman & Gilmans. et al.)

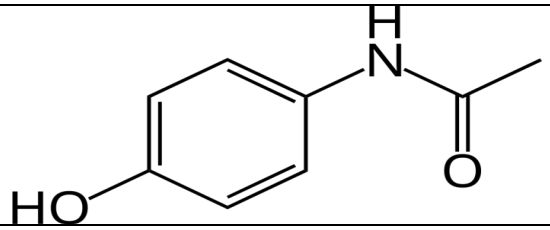
Ideal Characteristics of Paracetamol

Paracetamol (N-acetyl-p-aminophenol) is an antipyretic and analgesic drug. It is a mild–moderate analgesic. It has no anti-inflammatory effects. The recommended dose of paracetamol for children varies widely in literature and institutions, particularly in premature neonates. However, a similar effect-compartment concentration of 10 mg/litre2 should be aimed for in all pediatric age groups (Table 1). Paracetamol is available in oral (elixir/tablet), intravenous and rectal formulations. The oral route is frequently used as it has high bioavailability (F > 0.9). In contrast, rectal bioavailability is very variable (F = 0.25–0.98). There is a delay between plasma and effect site equilibration with a T1/2keo of 30–50 minutes. (Iwuozor Kingsley Ogemdi et al,2019)

Drug Profile of Paracetamol

(Vaishali N Sonawane et al.2023)

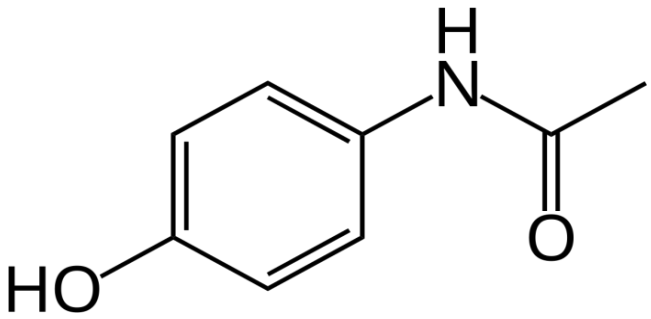
SL.NO.	DRUG PROFILE OF PARACETAMOL

1.	Structure	
2.	IUPAC Name	N-(4-hydroxyphenyl)acetamide
3.	Molecular Formula	$C_8H_9NO_2$
4.	Molecular Weight	151.2g/mol
5.	Category	Analgesic and anti-pyretic
6.	State	White solid
7.	Solubility	Soluble in water and alcohol
8.	Melting Point	169–172°C
9.	Boiling point	420°C
10.	Partition coefficient(P_C)	6.237
11.	pH	5.5-6.5
12	Dose	500mgto1gmevery4to6hours,upto4g Daily in devided doses.
13.	Store	Store protected from light and moisture

CHEMISTRY AND MECHANISMOFACTION

Chemistry of Paracetamol

Paracetamol consists of a benzene ring core, substituted by one hydroxyl group and the nitrogen group atom of an amide group in the para (1,4) pattern. The amide group is acetamide (ethanamide). It is an extensively conjugated system, as the lone pair on the hydroxyl oxygen, the benzene pic loud, the nitrogen lone pair, the carbonyl carbon, and the lone pair on the carbonyl oxygen is all conjugated. The presence of two activating groups also makes the benzene ring highly reactive toward electrophillic aromatic substitution. As the substituents are ortho, para- directing group and para with respect to each other, all positions on the ring are more or less equally activated. The conjugation also greatly reduces the basicity of the oxygens and the nitrogen, while making the hydroxyl acidic through delocalization of charge developed on the phenoxide anion (Ogemdi IK et al, 2019).



Mechanism of Action

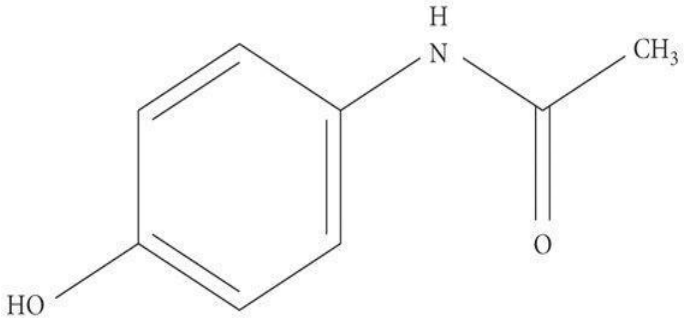
Paracetamol and salicylate are weak inhibitors of both isolated cyclooxygenase-1 (COX-1) and COX-2 but are potent inhibitors of prostaglandin (PG) synthesis in intact cells if low concentrations of arachidonic acid are available. The effects of both drugs are overcome by increased levels of hydroperoxides. At low concentrations of arachidonic acid, COX-2 is the major isoenzyme involved in PG synthesis when both COX-1 and COX-2 are present in cells. Therefore, paracetamol and salicylate may selectively inhibit PG synthesis involving COX-2 because the lower flux through this pathway produces lesser levels of the hydroperoxide, PGG_2, than the pathway involving COX-1. Apart from the lack of anti-inflammatory effect of paracetamol in rheumatoid arthritis, the clinical effects of paracetamol and salicylate are very similar and resemble those of the selective COX-2 inhibitors. A splice variant of COX-1, termed COX-3, may be a site of action of these drugs but, further work, particularly at low concentrations of arachidonic acid is

required. We suggest that paracetamol, salicylate and, possibly, the pyrazolone drugs, suchas dipyrone, may represent a distinct class of atypical NSAIDs which could be termed peroxide sensitive analgesic and antipyretic drugs (Garry G. Grahaman et al, 2003)

Sar of Paracetamol

SAR of Acetaminophen can be summarized as follows:

- Aminophenols are essential for antipyretic activity of acetaminophen.
- Amino & hydroxyl group in benzene ring both should be at para position.
- If hydroxyl group is removed it should be much toxic compared to paracetamol.
- Substitution on the nitrogen with such groups that decreases the basicity also reduces the activity of the drug.
- Amides derived from aromatic acids are less active or inactive.



PHARMACOLOGICAL STUDY

Pharmacodynamic studies: (Goodman & Gilmans .et al.)

Acetaminophen has only weak anti-inflamatory effects and has been thought to have a generally poor ability to inhibit COXinthe presence of high concentration of peroxides, as are found at sites of inflammation.

Single or repeated therapeutics dosages of acetaminophen have no effect on the cardiovascular and respiratory system, on platelets, or on coagulation. Acid- base changes and uricosuric effects do not occur, nor does the drug produce the gastric irritation, erosion, or bleeding that may occur after salicylate administration.

Pharmacokienetics studies: (KDTripathi, 2013)

Paracetamol is well absorbed orally, only about 1/4th is protein bound in plasma and it is uniformly distributed in the body. Metabolism occurs mainly by conjugation with glucoronic acid and sulphate: conjugates are excreted rapidly in urine. Plasma $t^{1/2}$ is 2-3 hours. Effects after an oral dose last for 3-5 hours.

ROUTES OF DRUG ADMINISTRATION: (Preetipatel et al. 2024)

- Acetaminophen can be administered through oral, rectal, or IVroutes.
- Oral: Acetaminophen is available in various formulations, Including tablets, capsules, syrup, oral solution, or suspension.
- Rectal: Acetaminophen is available as a rectal suppository for adult and pediatric patients.
- IV: Acetaminophen is also available as an IV infusion for administration.

Dosages for Adults and Adolescents

- **Adults and adolescents (13or older) with bodyweight of≥50kg:** The recommended dosage of acetaminophen is 1000 mg every 6 hours or 650 mg every 4 hours. The maximum single dose should not exceed 1000 mg, and the minimum dosing interval is 4 hours.
- **Adults and adolescents (13orolder) with bodyweight<50 Kg:** The recommended dosage of acetaminophen is 12.5 mg/kg every 4 hours or 15mg/kg every 6 hours. The maximum single dose should not exceed 15 mg/kg, and the minimum dosing interval is 4 hours.

Therapeutics of Paracetamol

Acetaminophen is a suitable substitute for aspirin for analgesic and antipyretic use; it is particularly valuable for patients in whom aspirin is contraindicated (e.g. those with peptic ulcer, aspirin hypersensitivity, children with a febrile illness). The contraventional oral dose of acetaminophen is 325-1000mg (650mg rectally); total daily doses should not

exceed 4000mg (2000mg/day for chronic alcoholics). The most common daily dose is 1000mg. the dose at which epidemiological studies suggests that GI adverse effect are less common than therapeutic doses of NSAIDs. Higher doses which may accomplish complete inhibition of COXs may approach the adverse effect profile of NSAIDs. Single doses for children range from 40-480mg, depending upon age and weight; no more than five doses should be administered in 24hours. A dose of 10mg/kg also may be used. (Goodman &Gilman)

Adverse Reaction: (Rssatoskar Etal, 1999)

- Paracetamol may cause fever, neutropenia, thrombocytopenia and skin reaction.
- Paracetamol may occasionally produce anemia as are sultofhaemolysis. Individuals with glucose-6-phosphate dehydrogenase deficiency may exhibit increased sensitivity to this drug.
- Methemoglobinaemia occurs uncommonly with paracetamol.
- Large doses of paracetamol produce extensive damage to the liver and may cause death due to liver failure. In fact it is a major problem in acute paracetamol poisoning.

AIM AND OBJECTIVE

Aim of the Study

Comparative study of assay between standard paracetamol and any marketed product.

What Is Assay

An assay is an investigative(analytic)procedure in laboratory medicine, mining, pharmacology, environmental biology and molecular biology for qualitatively assessing or quantitatively measuring the presence, amount, or functional activity of a target entity. The measured entity is often called the analyte, the measure and, or the target of the assay. The analyte can be a drug, biochemical substance, chemical element or compound, or organic sample. An assay usually aims to measure an analyte's intensive property and express it in the relevant measurement unit(e.g. molarity, density, functional activity in enzyme international units, degree of effect in comparison to a standard, etc.).

Objective of the Study

1. To analyze the chemical properties of a material.
2. To determine the purity of the paracetamol.
3. To accurately determine the concentration of paracetamol in a sample.
4. It can be also used to monitor the degradation of paracetamol overtime, which is useful for assessing its self-life & stability in different formulation.
5. To understand the interaction of light with molecules.
6. It can be used to identify & quantify impurities in paracetamol sample.

Literature Review

- Goodman & Gilmans. et al. they research about review of paracetamol tablet which is analgesic & antipyretic agent, however its anti-inflamatory effects are much weaker and it is not suitable substitute for aspirin, they also discuss the therapeutic action of paracetamol along with pharmacological action of paracetamol.
- Iwuozor Kingsley Ogemdi et al. research about ideal characteristics of paracetamol. It is available in oral, intravenous & rectal formulations. The oral route is frequently usedas it has high bioavailability ($f > 0.9$).
- Sonawane N Vaishali. et al. Research article about formulation and evalution of acetaminophen substance, and also research about drug profile along with which interrelated variables of considerable importance such as the type of delivery system.
- Ogemdi IK et al.2019. discuss about the chemistry of acetaminophen substance, situated by one hydroxyl group in the para position, the amide group is essential for this action of analgesics & antipyretics, the conjugation also greatly reduces the basicity of the oxygens and the nitrogen, while making the hydroxyl acidic through the delocalization of the charge developed on the phenoxide anion.
- Behera siladitya et al.2012. Research about a novel, safe and sensitive method of spectrophotometric estimation in UV-region has been developed for the assay of Paracetamol in its tablet formulation. The method have been developed and validated for the assay of Paracetamol using Methanol and water as diluents. Which does not shows any interference in spectrophotometric estimations. All the parameters of the analysis were chosen according to ICH [Q2 (R1)] guideline and validated statistically using RSD and

%RSD along with neat chromate grams.

- Patil M Dhananjay et al.2023. The study aims to establish the pharmaceutical equivalence of the different brands of paracetamol tablets and to justify the quality of different brands available in the market. The study involves the quantitative analysis of ten different brands of Paracetamol 500 mg tablets, using Ultra Violet Spectrophotometric methods, in which the samples were dissolved in 0.1M sodium hydroxide solution and distilled water and their various absorbance's determined at the wavelength (λmax) of 257nm.
- Grahaman G Garry et al,2003. Research about Paracetamol and salicylate are weak inhibitors of both isolated cyclooxygenase-1 (COX-1) and COX-2 but are potent inhibitors of prostaglandin (PG) synthesis in intact cells if low concentrations of arachidonic acid are available. The effects of both drugs are overcome by increased levels of hydroperoxides.
- Indian Pharmacopoeia, volume–II, the Indian Pharmacopoeia commission, gaziabad, 2007; specifically Vol-II focuses onstanderds for drugs & related products. It includes new monograph, revised chapters & incorporates advancements in analytical method. Particularly focusing on quality & safety standard.

MATERIALS AND METHODOLOGY

UV- Visible Spectroscopy is concerned with the study of the absorption of UV and visible radiations which ranges from 200-800 nm. Absorption of UV radiation causes the promotion of a valence electron from bonding to anti-bonding orbitals. The analytical concentration in the solution can be determined by measuring the absorbance at equivalent wavelength and by applying Beer-Lambert's Law. UV-Visible spectroscopy can be used for the both qualitative and quantitative analysis of chemical substance. (Vaishali N Sonawane et al, 2023)

Beer's Law

It states that the intensity of a beam of parallel monochromatic radiation decreases exponentially with the number of absorbing molecules. In other words, absorbance is proportional to the concentration. (Siladitya Behera et al, 2012)

-dI/dC∝I

Lambert's Law

It states that the intensity of a beam of parallel monochromatic radiation decreases exponentially as it passes through a medium of homogeneous thickness. A combination of these two laws yields the Beer-Lambert law. (Siladitya Behera et al, 2012)

-dI/dt∝I

Beer-Lambert's Law

When beam of light is passed through a transparent cell containing a solution of an absorbing substance, reduction of the intensity of light may occur. Mathematically, Beer- Lambert law is expressed as,

A= abc

Where, A=absorbance or optical density a=absorptivity or extinction coefficient

b= path length of radiation through sample (cm) c=concentration of solute in solution.

Both b and a are constant so a is directly proportional to the concentration c. When c is in gm/100ml, then the constant is called A(1%,1cm).(Siladitya Behera et al, 2012)

Regions of Electromegnatic Spectrum

Region	Wavelength
Far ultraviolet	10-200nm
Near ultraviolet	200-400nm

Visible	400-750nm
Near infrared	0.75-2.2μm
Mid infrared	2.5-50 μm
Far infrared	50-1000 μm

An Assay is an investigative procedure for qualitatively assessing or quantitatively measuring the presence or amount or the functional activity of a target entity which can be a drug or biochemical substance or organic sample. Pharmaceutical manufacturers are required to follow strict regulatory guidelines and prove their products are "high quality, safe, effective, and free of contamination and defects." (Vaishali N sonawane et al, 2023)
Assaysplayanimportantroleinthisprocessbydeterminingtheconcentrationof a drug compared to its labeled amount. Spectrophotometry is the quantitative measurement of the reflection or transmission properties of a material as a function of wavelength. The Assay of an absorbing substance may be quickly carried out by preparing a solution in a transparent solvent and measuring its absorbance at a suitable wavelength. (Vaishali N sonawane et al, 2023)

Usingstandard Absoptivity Value
This procedure is adopted by official compendia, e.g. Indian Pharmacopoeia, for stable substances that have reasonably broad absorption bands and which are practically unaffected by variation of instrumental parameters, e.g. slit width, scan speed. The use of standard A (1%, 1cm) or ε values avoids the need to prepare a standard solution of the reference substance to determine its absorptivity. The absorptivity value A (1%, 1cm) of a standard at a selected wavelength in n particular solvent is established and the concentration of the sample is determined by comparison with the standard value. (Vaishali N sonawane et al, 2023)

MATERIALS AND INSTRUMENTUSE
These materials are received from the chemical store. All the chemical were analytical grade. Shown in Table 4.1.

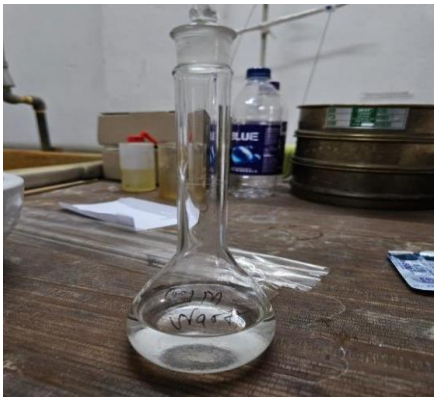
Table 4.1. Materials Used In the Assay of Paracetamol

Beaker	Used for holding liquids.
Conical flask	Mixing, heating & storing liquids.
Measuring cylinder	To measure the volume of liquid.
Pipette	Accurately measure the small amount of liquid.
Volumetric flask	To accurately measure volume of liquid Materials.
Mortar &pestle	To grind, crush of solid substance.
Distilled water	Preparing solution &rinsing glassware.
Paracetamol sample	To use for practical purpose.
Sodium hydroxide	To make 0.1M of NaOH solution to practical purpose.
Instruments Used In The Assay Of Paracetamol	
Weighing balance machine	Accurately measure mass of the particle.
UV spectrophotometer	To calculate the purity of the paracetamol.

Selection of Methods
These assay procedure is done by the study of U-V visible spectrophotometric methods.
1. Using standard absorptivity value in IP method.
2. Calibration curve method.

Determination of Λ Max of Paracetamol
10 μg/ml of Paracetamol solution was scanned between 400nm to 200nm. The absorption maxima (λ max) were found to be at 257nm. 257nmλmaxwas used for the Calibration curve method. Absorption maxima of Paracetamol in 0.1M sodium hydroxide solution was found to be at257nm.(Vaishali N sonawaneet al, 2023)

Preparation OF0.1MNaOH Solution
0.4g of Sodium Hydroxide was taken into a100ml volumetric flask and dissolved in a sufficient amount of distilled water to produce 100ml. The followed concentration was 0.1M NaOH. (Vaishali N sonawane et al, 2023)



Assay Procedure

These two different brands of paracetamol sample were assayed by the study of U-V spectrophotometer by using following steps:-

Using Standard Absorptivity Value

- 20 Tablets of Paracetamol from each brand were weighed and finely powdered by using a mortar and pestle.
- An accurately weighed quantity of powder equivalent to 150mg of Paracetamol was transferred to a 200ml volumetric flask.
- 25ml of0.1M NaOH and 50ml of distilled water were added and mechanically shaken for 15 minutes, then diluted with a sufficient amount of distilled water to produce 100ml. The resulting solution was then filtered by passing through Whatman filter paper.
- 10ml of the filtrate was transferred to a 100ml volumetric flask and further diluted to 100ml with distilled water.
- Again to 10ml of the resulting solution, 10ml of 0.1M NaOH was added and diluted to 100ml with distilled water and mixed thoroughly.

The UV Spectrophotometer was put at zero by running a baseline (between 400- 200nm) using0.1M NaOH solution as blank. The absorbance of each sample was determined at 257nm. The content of Paracetamol was calculated taking 715 as the specific absorbance at 257nm λmax of Paracetamol.(VaishaliNsonawaneet al, 2023)

Preparation of Standard Stock Solution

Standard stock solution of Paracetamol (100µg/ml) was prepared by dissolving 100mg of paracetamol pure powdered drug in 50ml of 0.1M NaOH solution and dilutedto100mlwithdistilledwater.10mloftheabovesolutionwastransferred to a 100ml volumetric flask and further diluted to 100ml with distilled water. (Vaishali N sonawane et al, 2023)

Preparation of Sample Solution

Weigh and powder 20 tablets. Weigh a quantity of the powder containing about 0.15gm of paracetamol, add 50ml of 0.1M sodium hydroxide, dilute with 100ml of water, shake for 15 minutes and add sufficient water to produce 200ml. Mix filter and dilute 10ml of the filtrate to 100ml with water. To 10ml of the resulting solution add 10ml of the 0.1M sodium hydroxide, dilute to 100ml with water and mix. Measure the absorbance of the resulting solution at the maximum at about 257nm (2.4.7). Calculate the content of $C_8H_9NO_2$ taking 715 as the specific absorbance

at257nm. (Indian pharmacopoeia, Vol-II, 2007)

Table 4.2. Weight Balance Sheet Are Shown In Table

Sl no.	Generic Drug (ingm)	Branded Drug (ingm)
1	0.6297	0.5832
2	0.5883	0.5948
3	0.5920	0.5886
4	0.5864	0.5933
5	0.5927	0.5886
6	0.5624	0.5891
7	0.5723	0.5783
8	0.5874	0.5829
9	0.5916	0.5915
10	0.5646	0.5961
11	0.5912	0.5673
12	0.5828	0.5876
13	0.5734	0.5959
14	0.5776	0.5986
15	0.5985	0.5663
16	0.5661	0.5632
17	0.5838	0.5691
18	0.5789	0.5724
19	0.5621	0.5766
20	0.5736	0.5859
Average weight	**0.5681**	**0.5834**

RESULT AND DISCUSSION

The assay of 2 different brands of paracetamol tablets manufactured by different manufacturers was performed in this study. The average weight and percentage content of paracetamol in different brands of paracetamol tablets were calculated and evaluated by using UV- Visible spectroscopic method.

Calculation for Branded Drug

Weigh accurately a quantity of powder equivalent to about 150mg or 0.15gm of paracetamol.

Average weight of paracetamol powder=0.583gm. Label claim- 500mg or 0.5gm

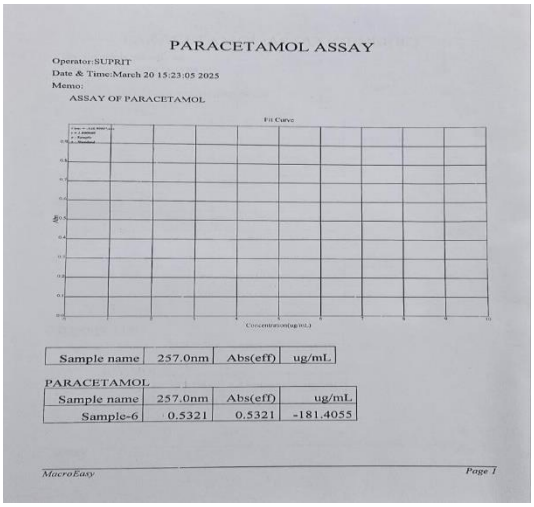
According to I.P method,

500 mg paracetamol contains 0.5834 gm of paracetamol powder.

So, 150 mg of paracetamol contains $\frac{0.5834}{500} \times 150$

=0.1750gm.

Now, we have to make the sample solution and find out the absorbance value by using UV spectrophotometer.



PARACETAMOL ASSAY

Operator:SUPRIT
Date & Time:March 20 15:23:05 2025
Memo:
ASSAY OF PARACETAMOL

Fit Curve

Sample name	257.0nm	Abs(eff)	ug/mL

PARACETAMOL

Sample name	257.0nm	Abs(eff)	ug/mL
Sample-6	0.5321	0.5321	-181.4055

MacroEasy Page 1

Assay,
Absorbance value=0.5321 As per I.P method,
Specific absorbance value=715. Now,
We have to calculate the amount of paracetamol (per tablet)

$$= \frac{\text{absorbance}}{specificabsorbance} \times Dilutionfactor \times Sampledilution \times averageweigh$$

$$= \frac{0.5321}{715} \times \frac{1}{100} \times \frac{200}{0.1750} \times \frac{100}{10} \times \frac{100}{10} \times 0.5834$$

$$= \frac{62.085}{125.125}$$

$$= 0.5022$$

In assay calculation, we get 0.5022gm or 502.2mg of paracetamol.

$$Percentage\ purity = \frac{amountofparacetamol}{Labelclaim} \times 100$$

$$= \frac{502.2}{500} \times 100$$

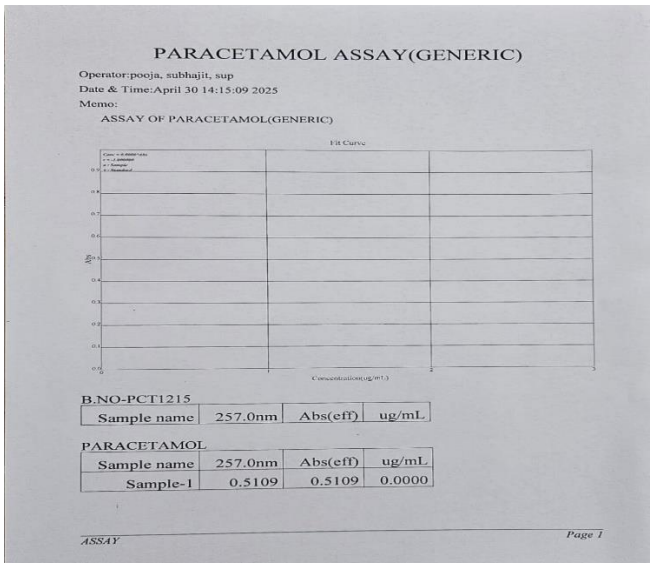
$$= 100.44\%$$

Calculation for Generic Drug
Weigh accurately a quantity of powder equivalent to about 150mg or 0.15gm of paracetamol.
Average weight of paracetamol powder=0.5681gm. Label claim- 500mg or 0.5gm
According to I.P method,
500mg paracetamol contains 0.5681gm of paracetamol powder.
So, 150mg of paracetamol contains

$$= \frac{0.5681}{500} \times 150$$

=0.1704gm.

Now, we have to make the sample solution and find out the absorbance value by using UV spectrophotometer.



PARACETAMOL ASSAY(GENERIC)

Operator:pooja, subhajit, sup
Date & Time:April 30 14:15:09 2025
Memo:
ASSAY OF PARACETAMOL(GENERIC)

Fit Curve

B.NO-PCT1215

Sample name	257.0nm	Abs(eff)	ug/mL

PARACETAMOL

Sample name	257.0nm	Abs(eff)	ug/mL
Sample-1	0.5109	0.5109	0.0000

ASSAY Page 1

Assay,
Absorbance value=0.5109 As per I.P method,
Specific absorbance value=715.
Now,
We have to calculate the amount of paracetamol (per tablet)

$$= \frac{\text{absorbance}}{specificabsorbance} \times Dilutionfactor \times Sampledilution \times averageweigh$$

$$= \frac{0.5109}{715} \times \frac{1}{100} \times \frac{200}{0.1704} \times \frac{100}{10} \times \frac{100}{10} \times 0.5681$$

$$= \frac{58.048}{121.836}$$

$$= 0.4799$$

In assay calculation, we get 0.4799gm or 479.9mg of paracetamol.

$$\text{Percentage purity} = \frac{amountofparacetamol}{Labelclaim} \times 100$$

$$= \frac{479.9}{500} \times 100$$
$$= 95.95\%$$

The results obtained by the IP method are tabulated below in Table no.1

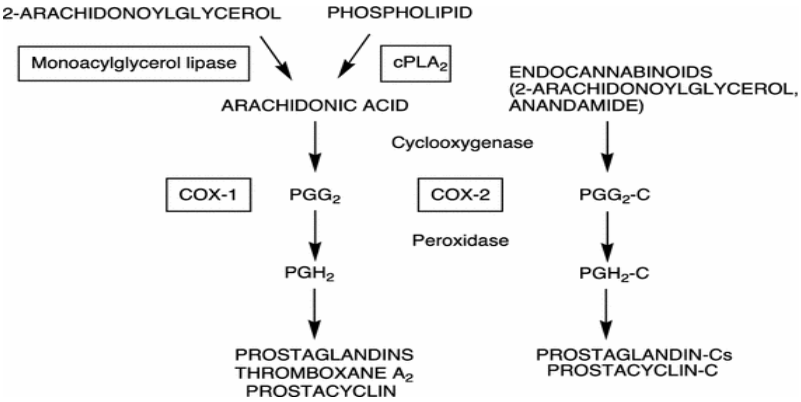
Table1.Comparison between Two Different Types of Paracetamol Tablet by IP Method

Sl No.	Brand Name	Label Claim (In Mg)	Average Weight (In Gm)	Percentage Content (%)	IP Specification (%)	Inference
1	Generic drug	500	0.5681	95.98	95.0-105.0	Pass
2	Branded drug	500	0.5834	100.44	95.0-105.0	Pass

The percentage content of Paracetamol in 2 different brands of Paracetamol Tablets is compared by using Standard Absorptivity Value (IP Method).
From the results obtained using the IP method, it was observed that 2 different brands of paracetamol tablets passed the assay since the percentage content of all of them are within the limit specified by the Indian Pharmacopoeia.

CONCLUSION

The comparative study of assay between standard paracetamol and any marketed product was done successfully by the U-V sprectrophotometric methods.
From the above study, it was found that the branded formulations marketed by reputed pharmaceutical industries show that the percentage content of paracetamol in paracetamol tablets complies with the specifications given in Indian Pharmacopoeia. Whereas, generic tablets also comply with the assay limit given in IP. So this study suggests that there is a need for improvement related to regulations during the approval of pharmaceutical products.
This study also shows that there is a noticeable difference between the results obtained by the standard absorptivity value method i.e. IP method. IP method shows a slightly higher percentage content of paracetamol in marketed product of paracetamol tablets compared to the specific absorptivity value.



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