

Assay of Azithromycin by HPLC in tablet dosage form

BACKGROUND-

Azithromycin is administered in different dosage forms to as antibiotic for the treatment bacterial infections. Few of the symptoms includes intestinal infections, middle ear infections, throat infection, pneumonia, traveler's diarrhea, and overall for respiratory tract infections. The Molecular weight and formula are 748.996g/mol and $C_{38}H_{72}N_2O_{12}$.

AIM- Aim of the experiment is to determine the content of Azithromycin in tablet dosage form is elaborated which is simple by using HPLC with ultraviolet detector.

REQUIREMENTS-

Azithromycin Active Pharmaceutical Ingredient

Azithromycin tablets

Dipotassium hydrogen phosphate

Phosphoric acid

Acetonitrile

Volumetric flask

Mortar pestle

Weighing balance

0.45 μ m Filter paper

Water

High Performance Liquid Chromatography

Column [C18 column (15 μ m x 4.6 mm, 5 μ m)]

PROCEDURE-

Buffer solution

Dissolve 1.16 gm of dipotassium hydrogen phosphate in water and dilute to 100 ml with water. Adjust pH to 6.5 with phosphoric acid.

Mobile phase

Mix buffer: acetonitrile : water in the ratio of 10:35:55

Diluent

Mix acetonitrile : water in the ratio of 40:60

Standard solution

Weight 20 mg of Azithromycin (API) in 100 ml volumetric flask containing about 50 ml of diluent, mix well and make up the volume up to 100 ml by diluent.

Sample solution

Triturate 20 no of azithromycin tablets in a mortar pestle. Weight equivalent to 20 mg of powdered sample in a 100 ml volumetric flask containing about 50 ml of diluent, shake vigorously to dissolve complete for about 10 -15 minutes, make up the volume up to 100 ml by diluent. Filter sample solution by 0.45 µm filter paper.

Chromatographic conditions

C18 column (15 mc x 4.6 mm, 5 µm)

Column temperature 70°C

Mobile phase flow rate 1 ml/min

Detection wavelength 215 nm

Injection volume 100 µl

Run the HPLC only with mobile phase at least for 10 minutes for conditioning of column.

Now inject standard solution six times by taking solution from volumetric flask each time and record the response/area.

Similarly inject filtered sample solution six times by taking solution from volumetric flask each time and record the response/area.

Sl. No.	Standard Area	Sample Area
1		
2		
3		
4		
5		
6		
Avg.		

Calculation

$$\text{Content (mg/tab)} = \frac{\text{Avg.sample area} \times 20 \text{ mg (standard weight)} \times 100 \text{ ml (sample dilution)} \times 99.8(\text{potency of API}) \times \text{Avg.wt of Tab}}{\text{Avg.Standard area} \times 100 \text{ ml (standard dilution)} \times \text{wt.of sample powder equivalent to 20 mg} \times 100}$$

CONCLUSION-

The content (mg/tab) of Azithromycin (market brand) tablet found to be ____.

REFERENCES-

1. <https://medlineplus.gov/druginfo/meds/a697037.html>
2. Indian Pharmacopoeia.