

Formulation Study

Atenolol Direct Compression

Summary

Atenolol is a well-known cardioselective beta-adrenergic blocker and is used in the treatment of hypertension and acute myocardial infarction.

Common dosages are very broad, ranging from 12.5 to 100 mg. In the following formulation, a 50 mg tablet is described.

Formulation

	Active content [mg]	mg/tablet	Contribution [%]
Atenolol	50.0	50.0	25.0
PROSOLV® RX 90		150.0	75.0
Total		200.0	100.0

Procedure

Blending

The API was blended with PROSOLV® RX 90 for 10 minutes. The powder mixture was ready for direct compression.

Equipment	
Tablet press	Kilian Pressima, 8 mm punch
Turbula mixer	Type T2A
Hardness tester	Schleuniger Tablet Tester 6D
Dissolution tester	Pharmatest PTW 2
Spectrophotometer	Cecil CE 1021

Tablet characteristics

Compaction force	3.0 kN
Tablet diameter	8.0 mm
Tablet weight	200.0 mg
Crushing strength	70.0 N
Friability	0.0 %
Disintegration time	30.0 s

Dissolution test

Dissolution medium 900 mL 0.1 N HCl, 37 °C, n = 6
Samples were taken after 5, 10, 15, 30, 60, 90, 120 and 180 minutes. The sample volume was 3 mL.
The determination of the active ingredient was done by UV spectroscopy at $\lambda = 230$ nm.

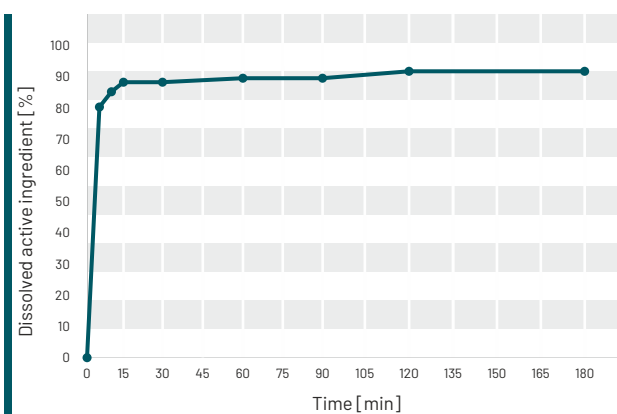


Fig. 1 Typical dissolution profile of an atenolol 50 mg tablet. Produced according to the above formulation.

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