

## HPLC Analysis of Penicillins in Veterinary Drugs

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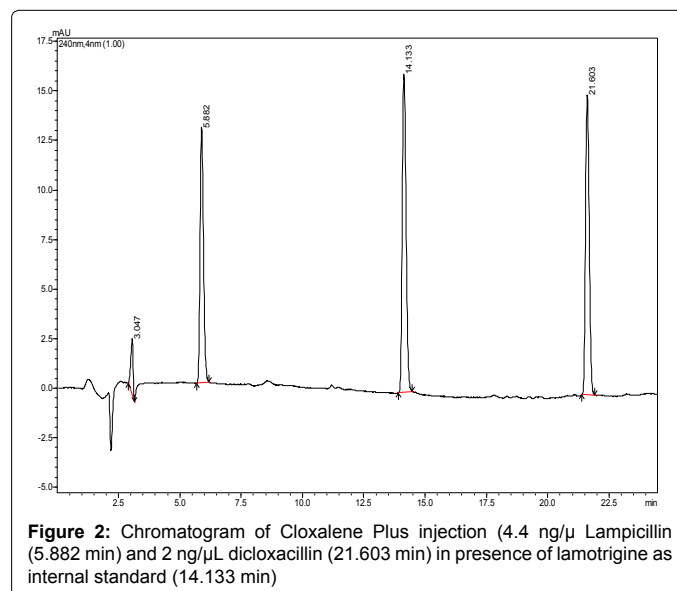
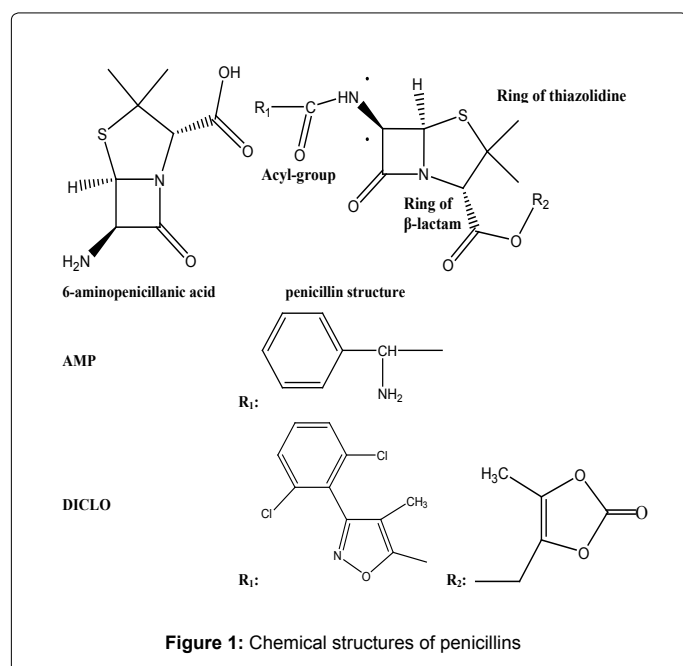
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Penicillins are beta ( $\beta$ )-lactam antimicrobial which are used against various organisms by inhibiting the synthesis of the peptidoglycan layer of bacterial cell walls. Broad-spectrum penicillins include ampicillin (AMP), penicillin G (PG), penicillin V (PV), oxacillin (OXA), cloxacillin (CLO) and dicloxacillin (DICLO). They act as bactericides being effective against Gram-positive and Gram-negative bacteria, but not very effective against *Pseudomonas*. Their chemical structures are shown in Figure 1.

An HPLC method was determined and validated for the simultaneous determination of penicillins in veterinary drugs, using an LC-10AD<sub>VP</sub> HPLC pump with Photodiode Array Detector, in compliance with data acquisition software LabSolutions-LC solutions by Shimadzu. Separation was performed on an Inertsil, C<sub>8</sub>, 250 × 4 mm, 5  $\mu$ m analytical column purchased from MZ-Analysentechnik (Mainz, Germany). Mobile phase consisted of CH<sub>3</sub>COONH<sub>4</sub> 0.05M and acetonitrile at a volume ratio 85:15 remaining isocratic for 5 min and changing to 40:60 in the next 20 min, was delivered at a flow rate of 1 mL/min. The method was applied to the analysis of commercially available pharmaceuticals.

Two veterinary drugs were analysed: ORBENIN L.A. by Pfizer Italia Srl (Latina, Italy), which contains 200 mg cloxacillin per 3 g of product and CLOXALENE PLUS by FatroS.p.A. (Bologna, Italy) containing 11 g ampicillin and 5 g dicloxacillin per 1 mL of product [1-4].

Accuracy of the method for analysed veterinary drugs ranged from -4-9.3% expressed as relative error. A representative chromatogram is shown in Figure 2.



### References

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