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## **RP-HPLC method for the simultaneous determination of Carbamazepine and Nilotinib: Application to interaction studies**

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**N**ilotinib (NIL) is used to treat a type of blood cancer called Philadelphia chromosome positive chronic myeloid leukemia. Carbamazepine (CBZ) is used to treat seizures, nerve pain and bipolar disorder. The important drug interactions may occur when used in combination of carbamazepine with Nilotinib. Nilotinib is metabolized by CYP3A4. CBZ shows a strong CYP3A4 inducer feature. A simple, rapid and accurate high performance liquid chromatography method for the simultaneous determination of NIL and CBZ in their tablets were developed and validated. The developed method was applied to in vitro drug interaction studies in different pH environments, simulating empty and full stomach juice (pH 1 and 4), intestinal juice (pH 9), and blood pH (7.4) at 37°C. The method employs an isocratic elution using water and acetonitrile (30:70 v/v) and an RP-C<sub>18</sub> HPLC column. Flow-rate was maintained at 1 mL/min, and the eluent monitored using a UV photo diode array detector at 281 nm. The calibration curves were linear over the concentration ranges of 0.0125-5 µg/mL for both drugs. For the interaction studies, in the presence of NIL, availability of CBZ was increased in all interaction medium. The increases of availability of CBZ in different pH medium from most to least were pH 7.4 > pH 4 > pH 9 > pH 1.2 > pH 6.8. For the application of NIL with CBZ, the availability of NIL increased mostly in pH 4 and moderate in pH 1.2 and pH 6.8. The availability of NIL showed decrease in pH 7.4 and 9.

### **Biography**

Zeynep Aydoğmuş has completed her PhD from Istanbul University and Postdoctoral studies from University of Illinois at Chicago, College of Pharmacy and Free University of Brussels. She is a full-time Professor at Istanbul University, Faculty of Pharmacy since 2012. She has published more than 35 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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