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# Investigation and structural elucidation of a new impurity in bulk drug of Cilostazol by LC/MS/MS, FT-IR and NMR

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**Graphical abstract**

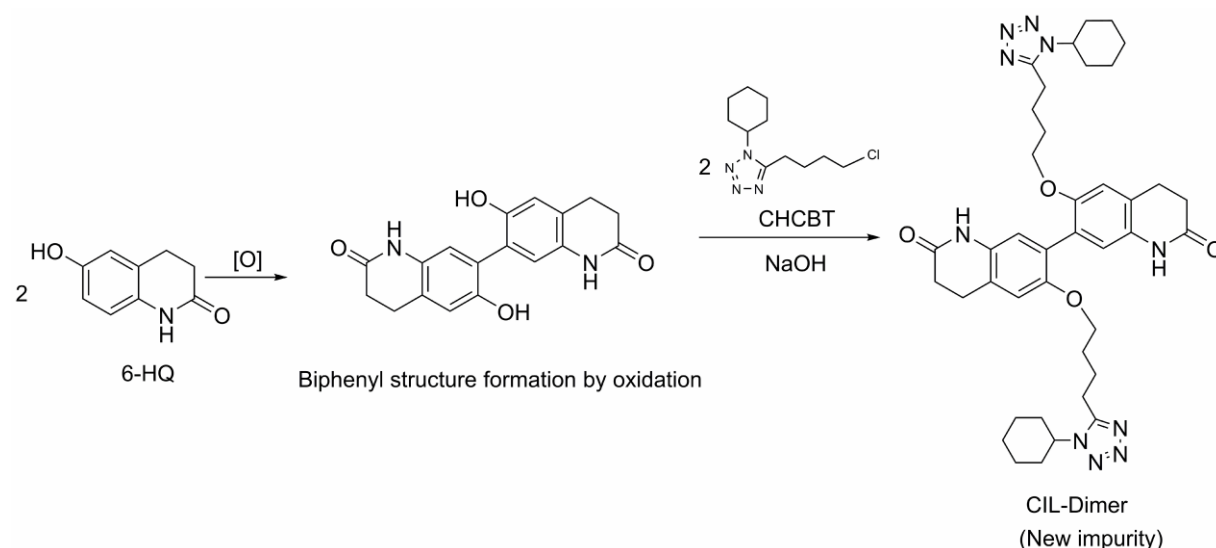


Fig.1. Graphical abstract

## Highlights

- A new cilostazol impurity has been identified using MS, NMR, and IR.
- Quantification of the impurity by HPLC was studied.
- The mechanism for the impurity formation was proposed and confirmed by comparison experiments.
- Nitrogen inerting can effectively control the formation of the impurity in cilostazol bulk production.

## ABSTRACT

A new impurity was detected in bulk cilostazol (CIL) crude during routine analysis. The impurity (~4%, the specification for unknown impurity in crude is not more than 0.20%) has a relative retention time of 1.46. Based on MS, NMR and IR spectral data, the impurity was identified as

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