

# 5<sup>th</sup> Symposium of Young Researchers on Pharmacognosy



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## BOOK OF ABSTRACTS



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# **BOOK OF ABSTRACTS**

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### Synthesis of bioactive evodiamine and rutaecarpine analogues under ball milling conditions

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Mechanochemical reactions achieved by processes such as milling and grinding are the future of chemistry. This approach not only eliminates the need for large amounts of solvents, thereby reducing waste generation, but also finds applications in chemical and materials synthesis.

This study focuses on the synthesis of quinazolinone derivatives by ball milling, in particular evodiamine and rutaecarpine analogues. These compounds are of interest due to their diverse bioactivities, including potential anticancer properties. The study examines the reactions carried out under ball milling conditions and demonstrates their efficiency in terms of shorter reaction times and reduced environmental impact compared to conventional methods. The ball milling reaction of evodiamine and rutaecarpine analogues resulted in yields of 63–78% and 22–61%, respectively. Furthermore, these compounds were tested for their cytotoxic activity, with evodiamine exhibiting an  $IC_{50}$  of  $0.75 \pm 0.04 \mu\text{g mL}^{-1}$  against the Ca9-22 cell line. This research represents a new and effective means to synthesise these compounds, providing a more environmentally friendly and sustainable alternative to traditional approaches.

#### References

[1] Hao-Chun Hu et al. *Org. Biomol. Chem.*, **2024**, 22: 2620.

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