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Ministry of Higher Education and Scientific Research
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Faculty of Medicine
Department of Pharmacy



**A thesis submitted in partial fulfilment of the requirements for the
degree of Doctor of Pharmacy**

**Bioinformatics in Pharmaceutical Sciences:
Sodium-glucose Cotransporter-2 Inhibitors Repurposing**

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Abstract

This thesis investigates the integration of bioinformatics in the repurposing of SGLT2 inhibitors—dapagliflozin, canagliflozin, empagliflozin, and sotagliflozin. Utilising databases and computational tools, the study analyses the potential new therapeutic indications for these inhibitors. The findings underscore the potential of bioinformatics to enhance drug discovery and repurposing, ultimately aiming to improve clinical outcomes and expand therapeutic options.

Keywords: Bioinformatics, Drug repurposing, SGLT2 Inhibitors.

Résumé

Cette thèse examine l'intégration de la bioinformatique dans le repositionnement des inhibiteurs de SGLT2—dapagliflozine, canagliflozine, empagliflozine et sotagliflozine. En utilisant des bases de données et des outils informatiques, l'étude analyse les nouvelles indications thérapeutiques potentielles pour ces inhibiteurs. Les résultats soulignent le potentiel de la bioinformatique pour améliorer la découverte et le repositionnement des médicaments, visant en fin de compte à améliorer les résultats cliniques et à élargir les options thérapeutiques.

Mots-clés: Bioinformatique, Repositionnement des médicaments, Inhibiteurs de SGLT2.

الملخص

تبحث هذه الأطروحة في دمج المعلوماتية الحيوية في إعادة توظيف مثبطات SGLT2—داباغليفلوزين، كاناغليفلوزين، إمباغليفلوزين، وسوتاغليفلوزين. باستخدام قواعد البيانات والدورات الحاسوبية، تحل الدراسة المؤتمتة العالجية الجديدة المحتملة لهذه المثبطات. تؤكد النتائج على إمكانية المعلوماتية الحيوية في تعزيز اكتشاف الأدوية وإعادة توظيفها، بهدف تحسين النتائج السريرية وتوسيع الخيارات العلاجية في النهاية.

الكلمات الدالة: المعلوماتية الحيوية، إعادة توظيف الأدوية، مثبطات SGLT2.

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