Ain Shams University
Faculty of Education
Department of Chemistry

"Utility of 6-methylchromone-3-carbonitrile in heterocyclic synthesis"

A Thesis Submitted
By

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In Partial Fulfillment for

Requirements of Doctor of Philosophy Degree for Teacher's Preparation in Science (Organic Chemistry)

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Approval Sheet

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Supervisors	*Signature*
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Prof. Dr. Magdy Ahmed Mohamed Ibrahim	…….
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The thesis was approved — Approval date / / 2018

Approved by Council of Faculty — Approved by Council of University

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*First of all, thanks to **GOD**, for helping me to accomplish this thesis.*

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Many thanks to Prof. Dr. **Mahmoud Mohamed Mashaly** the present Head of the Department of Chemistry and Prof. Dr. **Ali Mahmoud Taha**, the previous head, who introduced great kind facilities and encouragement.

Sara Said El-Sayed Mohamed

This work is dedicated

to

"My father"

My mother, and My brothers

Special thanks to my family; my ideal hero father, my mother (the icon of affection, warmth, tenderness and safety), my lovely and kindly brother Ahmed and my dear and friendly brother Mohamed
For all their efforts they exert for me
God bless you for me.

بسم الله الرحمن الرحيم

قُلْ إِنَّ صَلاَتِي وَنُسُكِي وَمَحْيَايَ
وَمَمَاتِي لِلَّهِ رَبِّ الْعَالَمِينَ(١٦٢) لاَ شَرِيكَ لَهُ
وَبِذَلِكَ أُمِرْتُ وَأَنَاْ أَوَّلُ الْمُسْلِمِينَ(١٦٣)

سورة الأنعام
صدق الله العظيم

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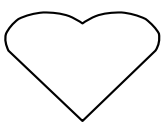

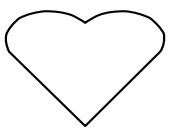

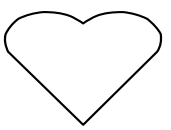

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سورة الأنعام
صدق الله العظيم

Contents

Aim of the work

The present work aims to:

1. Synthesize 6-methylchromone-3-carbonitrile (**1**) and utilize this compound as the starting material.
2. Study the chemical behavior of 6-methylchromone-3-carbonitrile (**1**) towards a variety of nitrogen nucleophilic reagents.
3. Study the chemical transformations of 6-methylchromone-3-carbonitrile (**1**) towards some cyclic and acyclic active methylene nucleophiles.
4. Elucidate the newly synthesized products using elemental analysis and different spectroscopic techniques.
5. Evaluate the antimicrobial activity of the newly synthesized compounds.