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Synthesis of 1-(6-Chloro-2-methyl-4-phenylquinoline) ethanone using different heterogeneous catalysts in dry media under microwave ir-radiation.

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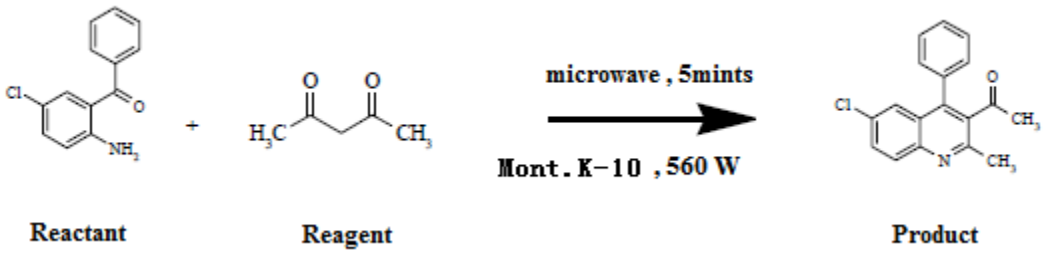
Abstract:
The1-(6-Chloro-2-methyl-4-phenylquinoline) ethanoneis synthesized in dry media using heterogeneous catalyst in high yield in shorter reaction time under microwave ir-radiations.
Key Words: *Indole, Microwave, Aryl, heterocyclic.*

I. Introduction:

The trisubstituted quinolines have wide range of biological activities as anti-malarial, anti-bacterial, anti-asthmatic, anti-hypertensive, anti-inflammatory, anti-platelet activity and as tyro-kinase PDGF-RTK inhibiting activity.[1-3] The synthesis of trisubstituted quinolines under conventional refluxing conditions require longer reaction time and tedious work up so, there existed a need for alternative methods to carry out the synthesis of trisubstituted quinolines. Microwave assisted reactions are gaining much more importance in synthetic organic chemistry due to dramatic reduction in time from days to hours and hours to minutes or seconds.[4-24] The conventional heating reaction conditions are modified by changing media and catalyst. The present work reports the synthesis of Ethyl-6-chloro-2-methyl-4-phenylquinoline-3-carboxylate indry media using heterogeneous catalyst in high yield in shorter reaction time under microwave irradiations (Scheme-I).



(Scheme)

Weinitiated our investigations by condensingacetylacetone(1mmole) with5-chloro-2-aminobenzophenone(1mmole) at 80 W,160 W,240 W,320 W,400 W,480 W and 560 W in the presence of Mont.K-10. The results obtained are shown in Table-1 below. As can be seen from the Table-1 that when ethylacetoacetate(1mmole) react with5-chloro-2-aminobenzophenone(1mmole) to give1-(6-Chloro-2-methyl-4-phenylqu- inoline) ethanone, 560 W power level proved to be the best from the yield point of view.

Table-1: Synthesis of 1-(6-Chloro-2-methyl-4-phenylquinoline) ethanone using Mont.K-10under various ir-radiation (power levels).

Sr.N.	Power Levels (watts).	Yield (%).	Time (mints.)
1	80	83	5
2	160	85	5
3	240	87	5
4	320	89	5
5	400	92	5
6	480	94	5
7	560	96	5

[6]. Anastas, P. and Warner, J.C. Green Chemistry: Theory and Practice, Oxford Science Publicatons, Oxford, 1998.
[7].