

# A New method to synthesize anti malarial drug and its analogues

## EXECUTIVE SUMMARY

A simple and efficient procedure for the chemical synthesis of otherwise naturally derived compound called flinderole and its analogues, which can be used to prepare drugs against multiply resistant strains of the malarial parasite, *plasmodium falciparum*. The process will enable the user to produce the compounds in commercial quantities.

## BACKGROUND

*Plasmodium Falciparum*, the parasitic micro organism that causes the most clinically severe type of malaria is becoming increasingly multi-drug resistant. New drug molecules are urgently required to be developed against such plasmodium strains.

## TECHNOLOGY DESCRIPTION

Recently it has been discovered that naturally derived compounds called flinderoles show impressive anti-malarial activity. NCL scientists have developed a novel method for synthesizing flinderole analogues using a fully synthetic route (total synthesis) which has an overall yield of 17.2%. The process developed will enable to produce these anti-malarial compounds in commercial quantities.

## MARKET POTENTIAL

- In 2008, there were 247 million cases of malaria and nearly one million deaths\*
- Over \$1.8 billion was spent in 2010 to control malaria\*\*
- There is a pressing need to develop new malarial drugs as the in many countries it has been identified that *P. Falciparum* is resistant to conventional malaria drugs like chloroquine, sulfadoxine-pyrimethamine and amodiaquine\*\*\*

\* <http://www.who.int/mediacentre/factsheets/fs094/en/>, \*\* World Malaria Report, 2010, World Health Organization, \*\*\* WHO briefing on Malaria Treatment Guidelines and artemisinin monotherapies Geneva, 2006

## VALUE/ADVANTAGES

- Potentially could be used to treat drug resistant strains of *Plasmodium falciparum*
- A simple and efficient process
- The process developed results in high yields (17%) of flinderole analogues
- The process is useful for the production of commercial quantities of these compounds

## APPLICATIONS

- Developing anti malarial drugs
- Agriculture

## TECHNOLOGY STATUS/LINKS

- Demonstrated at the lab scale
- On the lookout for potential partners for spin-off and licensing
- Patent application filed: Indian #-0336/DEL/2011
- Dethe, D. et al. (2011) Biomimetic Total Syntheses of Flinderoles B and C, J. Am. Chem., 133, 2864-2867 ([link](#))