

Development of Potable and Affordable Nuclear Magnetic Resonance (NMR) for Malaria Diagnosis in Human Subject

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Abstract

Malaria is a leading parasitic disease which imperil the lives of many people especially in tropical climates. Presently, available malaria diagnostic tools/ techniques e.g. [Giemsa-Stained Microscopic, Rapid Diagnostic Tests (RDT), and Polymerase Chain Reaction (PCR) are less sensitive, time consuming, requires well trained operator, and costly in nature. In additions, both PCR and RDT are unable to provide quantitative analysis on the parasitaemia levels. Hence, there is an urgent demand of fast, sensitive, and reliable diagnostic tools. The portable Nuclear Magnetic Resonance (NMR) has been gaining considerable attention amongst scientist community due to the promising applications in in-vivo and quantitative detection of various small biological/chemical applications related to healthcare. Traditionally, available NMR is very costly, requires skill operator, bulky and thus difficult for Point- of-Care applications. Here, in this talk a portable, cost-effective, and benchtop NMR system having 0.5 Tesla field operating at 21.287MHz is demonstrated. The developed NMR is successfully capable of detection of the parasite load during the early stage of Malaria.

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Biography

Manish Gupta is currently a postdoctoral researcher at Department of Radiology, University of Pennsylvania, USA. He completed his Ph.D. from Ph.D. in Computer Science from JNU, New Delhi. Gupta is also former postdoctoral researcher at Gwangju Institute of Science and Technology, South Korea. His research areas are development of portable sensors, development of radiofrequency coils for NMR, MRI,

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