

## Abstract

This study aimed to determine the accuracy of malaria rapid diagnostic tests (RDT) used in Thailand Malaria Control Program. Three brands of RDTs: Paracheck P.F.<sup>TM</sup> (detecting single species), OptiMAL IT<sup>TM</sup> and SD MRDT (detecting pan or multi-species), were field assessed and compared to Giemsa-Stained Thick Blood Film (GS-TBF). The assessment was conducted during April to July 2013 in the malaria clinics of three provinces, consisting a northern province; Tak, a western province; Kanchanaburi, and an eastern province; Chanthaburi. Totally 899 suspected malaria cases visited to these malaria clinics. Of these cases; 84, 157, and 658 found *Plasmodium falciparum*-positive, *Plasmodium vivax*-positive and malaria-negative, respectively. All cases were diagnosed by four tests; GS-TBF and the three RDT tests, consisting of Paracheck P.F.<sup>TM</sup>, OptiMAL IT<sup>TM</sup> and SD MRDT. These RDTs revealed the sensitivity for *P. falciparum*, 98.81%, 91.67%, and 94.05% respectively. Whereas the sensitivity for *P. vivax* of OptiMAL IT<sup>TM</sup> and SD MRDT were 94.27% and 95.54% respectively. The specificity of the three RDTs were higher than 99.00% which was proved that these RDTs were well discriminated for positive cases. This study revealed the superiority of Paracheck P.F.<sup>TM</sup> in detecting *P. falciparum* to two other RDTs. Regarding *P. vivax*, both OptiMAL IT<sup>TM</sup> and SD MRDT revealed their accuracy in bottom line of acceptance. In conclusion, this study gave evident to malaria policy maker to determine which kind of tests could be used in remote malaria endemic areas.

## Key words

*Rapid Diagnostic Test, RDT, accuracy, malaria*