

The in vitro anti-plasmodial and in vivo anti-malarial efficacy of combinations of some medicinal plants used traditionally for treatment of malaria by the Meru community in Kenya.

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Abstract

The use of herbal drugs as combinations has existed for centuries in several cultural systems. However, the safety and efficacy of such combinations have not been validated. In this study, the toxicity, anti-plasmodial and antimalarial efficacy of several herbal drug combinations were investigated. *Lannea schweinfurthii*, *Turraea robusta* and *Sclerocarya birrea*, used by traditional health practitioners in Meru community, were tested for in vitro anti-plasmodial and in vivo anti-malarial activity singly against *Plasmodium falciparum* and *Plasmodium berghei*, respectively. Methanolic extract of *Turraea robusta* was the most active against *Plasmodium falciparum* D6 strain. Aqueous extracts of *Lannea schweinfurthii* had the highest anti-plasmodial activity followed by *Turraea robusta* and *Sclerocarya birrea*. D6 was more sensitive to the plant extracts than W2 strain. *Lannea schweinfurthii* extracts had the highest anti-malarial activity in mice followed by *Turraea robusta* and *Sclerocarya birrea* with the methanol extracts being more active than aqueous ones. Combinations of aqueous extracts of the three plants and two others (*Boscia salicifolia* and *Rhus natalensis*) previously shown to exhibit anti-plasmodial and anti-malarial activity singly were tested in mice. Marked synergy and additive interactions were observed when combinations of the drugs were assayed in vitro. Different combinations of *Turraea robusta* and *Lannea schweinfurthii* exhibited good in vitro synergistic interactions. Combinations of *Boscia salicifolia* and *Sclerocarya birrea*; *Rhus natalensis* and *Turraea robusta*; *Rhus natalensis* and *Boscia salicifolia*; *Turraea robusta* and *Sclerocarya birrea*; and *Lannea schweinfurthii* and *Boscia salicifolia* exhibited high malaria parasite suppression (chemo-suppression >90%) in vivo when tested in mice. The findings are a preliminary demonstration of the usefulness of combining several plants in herbal drugs, as a normal practice of traditional health practitioners.