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# Antimalarial anthrones from the leaf latex of *Aloe sinana*

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**Introduction:** Despite over a century of effort and early optimism, a malaria-free world remain as much distant vision as ever. Many malaria control strategies exist, but none are appropriate and affordable in all contexts. Some of the factors that contributed to this worst picture of malaria are high cost control programs, emergence of new insecticide resistant strains of the vector, creation of new mosquito breeding sites, the problem of drug resistance (*P. falciparum*) to almost all currently available antimalarial drugs, lack of organized health infrastructures and the migration behavior of people that increase the incidence and spread of malaria. *Aloe sinana* is one of endemic *Aloe* species of Ethiopia where its leaf latex is traditionally used in Debre Sina and in other central highlands of the country for the treatment of various illnesses, including malaria, wounds and snake bite. In continuation of our on-going research on antimalarial compounds from plants, the leaf latex of *A. sinana* was investigated for its antimalarial activity.

**Materials & Methods:** The following methods were used:

1. **Extraction:** Leaves were harvested and the latex was collected by cutting the leaf transversally near the base and inclining on stainless tray. The water was allowed to evaporate in open air for two days, which yielded a reddish dark substance.
2. **Isolation of compounds:** Isolation of compounds was performed by dissolving the latex in methanol and applied directly to PTLC (chloroform and methanol mixture; 4:1). The isolated compounds were further purified by repeated PTLC.
3. **Structural elucidation:** All isolated compounds were characterized as anthrones by using various spectroscopic techniques (1H, 13C NMR, DEPT-135 and ESIMS).
4. **Acute oral toxicity test:** Oral toxicity study was conducted as per the internationally accepted protocol drawn under OECD guidelines 423.
5. ***In vivo* antimalarial assay:** Antimalarial activity of the test samples was evaluated by a 4-day suppressive test against mice infected with *Plasmodium berghi* as described by Knight and Peters.

**Results:** The latex and all the isolated compounds showed significant chemo-suppression in mice infected with *P. berghi*. At a dose of 400 mg/kg, the latex suppressed parasite growth by 68.2% compared to the negative control group and improved survival time considerably. Among the isolated compounds, aloinoside showed the most potent anti-plasmodial activity inhibiting parasite growth by 85.2% at a dose of 100 mg/kg, with no signs of acute toxicity up to a dose of 5000 mg/kg.

**Conclusion:** The leaf latex of *A. sinana* and isolated compounds, particularly aloinoside showed promising *in vivo* antimalarial activity. In light of the relative safety of the latex and isolated compounds, it can be concluded that the test substances could serve as potential candidates for the treatment of malaria. These results further illustrate that the reputed application of *A. sinana* leaves in the treatment of malaria in traditional medical practices is well founded.

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**Notes:**