Quassinoid constituents of *Quassia amara* L. (Simaroubaceae) leaf herbal tea. Impact on its antimalarial activity and cytotoxicity.

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French Guiana records high malaria incidence rates. The traditional antimalarial remedy most widespread and still very much in use there is a tea made out from *Quassia amara* mature leaves. The antimalarial activity of this preparation was assessed [1] and in order to optimize the *in vitro* activity, different types of preparation have been realized and tested. The most active *in vitro* preparation is an infusion of fresh young leaves. It demonstrated a very good activity, *in vitro* as well as *in vivo* [2]. A known quassinoid, simalikalactone D (SkD), was identified as the active compound, with an IC_{50} value of 10 nM against FcB1 *Plasmodium falciparum* chloroquine resistant strain *in vitro* [3]. Our next objective was to assess whether it could be contemplated to recommend this young leaves tea for treatment against malaria, since it seemed from literature precedent that SkD was also cytotoxic to a number of cellular lineages [4,5]. We then characterized and quantified the antiparasitic and cytotoxic activities of all the constituents. Several quassinoids were isolated and characterized in the tea: SkD, quassin, neoquassin, and picrasins B, H,I(new) and J (new), SkD being responsible of both antiplasmodial activity and cytotoxicity. In addition, in the context of an antimalarial treatment, it appeared that the dose necessary for obtaining a curative antimalarial effect is close to the toxic dose of an SkD analogue, bruceantin. Prior to emitting a definitive conclusion, a clinical study in humans similar to the one done with bruceantin [6] should be performed.

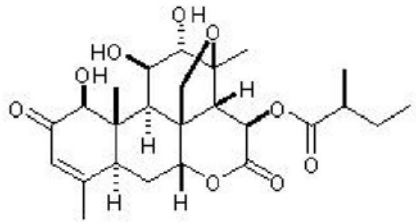

Image 1: Simalikalactone D

References: References:1. Bertani, S. et al. (2005) J. Ethnopharmacol. 98:45–54.2. Bertani, S. et al. (2007) J. Ethnopharmacol.111 :40–42.3. Bertani, S. et al. (2006) J. Ethnopharmacol.108:155–157. 4. Ozeki, A. et al. (1998) J. Nat. Prod. 61:776 –780.5. Xu, Z. et al. (2000) J. Nat. Prod. 63:1712–1715.6. Bedikian, A.Y. et al. (1979) Cancer Treat. Rep. 63:1843–1847.