

Publication

Assessment of dual life stage antiplasmodial activity of british seaweeds

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 2230430**Author(s)** Spavieri, Jasmine; Allmendinger, Andrea; Kaiser, Marcel; Itoe, Maurice Ayamba; Blunden, Gerald; Mota, Maria M; Tasdemir, Deniz**Author(s) at UniBasel** [Kaiser, Marcel](#) ;**Year** 2013**Title** Assessment of dual life stage antiplasmodial activity of british seaweeds**Journal** Marine drugs**Volume** 11**Number** 10**Pages / Article-Number** 4019-34**Keywords** seaweed, marine alga, malaria, Plasmodium, malaria prophylaxis, fatty acid biosynthesis, liver stage, blood stage

Terrestrial plants have proven to be a prolific producer of clinically effective antimalarial drugs, but the antimalarial potential of seaweeds has been little explored. The main aim of this study was to assess the in vitro chemotherapeutical and prophylactic potential of the extracts of twenty-three seaweeds collected from the south coast of England against blood stage (BS) and liver stage (LS) Plasmodium parasites. The majority (14) of the extracts were active against BS of *P. falciparum*, with brown seaweeds *Cystoseira tamariscifolia*, *C. baccata* and the green seaweed *Ulva lactuca* being the most active (IC₅₀s around 3 µg/mL). The extracts generally had high selectivity indices (>10). Eight seaweed extracts inhibited the growth of LS parasites of *P. berghei* without any obvious effect on the viability of the human hepatoma (Huh7) cells, and the highest potential was exerted by *U. lactuca* and red seaweeds *Ceramium virgatum* and *Halopitys incurvus* (IC₅₀ values 14.9 to 28.8 µg/mL). The LS-active extracts inhibited one or more key enzymes of the malarial type-II fatty acid biosynthesis (FAS-II) pathway, a drug target specific for LS. Except for the red seaweed *Halopitys incurvus*, all LS-active extracts showed dual activity versus both malarial intracellular stage parasites. This is the first report of LS antiplasmodial activity and dual stage inhibitory potential of seaweeds.

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