INSECTICIDE PROPERTIES OF AN EXTRACT OF SEXTONIA RUBRA, AND THE CONSTITUENTS THEREOF (WO/2016/046489)

Summary

This innovation valorizes a sustainable Amazonian wood species (Sextonia rubra) and in particular sawmill by-products, to produce an efficient biolarvicide targeting mosquito vectors of infectious diseases. The wood extract (notably ethyl acetate extract) and its two major constituents (rubrenolide and rubrynolide) exhibit strong larvicidal activity against Aedes aegypti, a key mosquito species involved in the transmission of dengue, chikungunya, Zika and yellow fever.

This approach addresses a critical public health need by offering alternative solutions in response to the increasing resistance to conventional insecticides and to tightening regulatory constraints.

Description of the invention	The invention relates to the use of a composition comprising: • a Sextonia rubra extract (preferably an ethyl acetate extract), and/or • at least one isolated active constituent: rubrenolide and/or rubrynolide, as an insecticidal agent, particularly a larvicidal agent, notably against mosquitoes of the Culicidae family, and more particularly against Aedes aegypti. The preparation relies on simple and industrially scalable extraction processes (maceration, polar solvents, etc.), with a strong focus on solvents compatible with scale-up. Biological assays performed according to WHO-inspired protocols demonstrate significant laboratory efficacy, with particularly high activity observed for rubrenolide, whose performance falls within the same range as reference natural larvicides.
Benefits	• New source of larvicidal active ingredients of plant origin (wood) • Valorization of co-products (operating waste/sawdust): circular economy approach • High efficacy on Aedes larvae (including Aedes aegypti) • Potential for reducing environmental footprint (renewable origin, expected biodegradability) • Relevant positioning in the context of resistance to conventional insecticides
Applications	• Public health: larval control of disease-vector mosquitoes (urban, peri-urban, tropical and subtropical areas) • Agrochemical / crop protection: natural-origin insecticide (depending on targets and regulatory approvals) • Mosquito control programs and management of larval breeding sites (local authorities, operators)
Keywords	Biopesticide, larvicide, mosquito, Aedes aegypti, Sextonia rubra, rubrenolide, rubrynolide, arboviruses, vector control, sawmill waste
TRL	TRL 3/4: proof of concept and efficacy demonstrated at laboratory scale (bioactivity and extraction processes described).
Partnership / License	License or option
Development stage	Robust biological results obtained under controlled laboratory conditions, identification of active constituents, and detailed extraction and isolation processes. Next development steps include formulation, stability studies, extended ecotoxicology, and semi-field/field trials.