

# **The efficacy of 22,23-dihydroavermectin B1 (Ivermectin) acting singly or in combination with a benzodiazepine on microfilariae of Onchocerca species and Brugia pahangi (an in vitro study)**

Estambale, Benson; Howells, RE

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## **Abstract:**

An in vitro study of the antinematodal action of two groups of compounds which act on the receptor complex of the inhibitory neurotransmitter, Gamma-aminobutyric acid (GABA) in mammalian systems is described. The compounds, Ivermectin and two benzodiazepines, Diazepam and a water soluble Midazolam were tested singly or in combination against two microfilarial parasites *Onchocerca lienalis* (closely related to *Onchocerca volvulus*) and *Brugia pahangi*. The combination of ivermectin and diazepam at a concentration of 0.1 microgram/ml and 33 micrograms/ml respectively achieved the same effect on microfilarial motility as when ivermectin was given at 1 microgram/ml alone or diazepam at 66 micrograms/ml alone. Similarly when the combination of ivermectin at 0.1 microgram/ml and midazolam at 10 micrograms/ml was used it achieved the same effect as ivermectin at 1 microgram/ml alone or midazolam at 33 micrograms/ml alone. This showed that both benzodiazepines had a synergistic effect on the activity of ivermectin. The microfilariae of *B. pahangi* were insensitive to both groups of compounds at all concentrations used