



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

Impact of the Pan-tropical Weed *Parthenium Hysterophorus* L. on Human Health in Ethiopia

MELANIE WIESNER¹, TAYE TESSEMA², ANDREAS HOFFMANN³, PESTEMER WILFRIED⁴, CARMEN
BÜTTNER⁵, INGA MEWIS⁶, CHRISTIAN ULRICHS⁷

¹Humboldt University Berlin, Urban Horticulture,

²Plant Protection Research Center, Weed Science, Ethiopia

³Paul-ehrlich-institut, Federal Agency for Sera and Vaccines,

⁴Humboldt University Berlin, Phytomedicine, Germany

⁵Humboldt-Universität zu Berlin, Institute for Horticultural Sciences, Section Phytomedicine, Germany

⁶Humboldt University Berlin, Urban Horticulture, Germany

⁷Humboldt-Universität zu Berlin, Institute for Horticultural Science, Section Urban Horticulture, Germany

Abstract

Parthenium (*Parthenium hysterophorus*) is one of the worst weeds for agriculture, the environment and human health in Ethiopia. *Parthenium* is a genus in the family *Asteraceae*. It is native to Mexico and South America and has spread after its introduction prolifically in Ethiopia and its neighbour countries. Studies in other parts of the world have shown that *Parthenium* inhibits the growth and seed germination of other plants through allelopathy, and also that they cause asthma and serious dermatitis in humans. Here most symptoms are contributed to the sesquiterpene lactone parthenin. However, detailed information on dose effects, the impact of other secondary plant compounds on human health, and the economic impact in Ethiopia are still missing.

In interviews we asked a total of 64 farmers (19–44 years old) in different infested territories in Ethiopia about their health problems when handling *Parthenium*. The following symptoms could be associated towards *Parthenium*: general illness (80 %, tired, flappy), allergic reactions (90 %, hay fever), asthmatic problems (62 %, contraction of breath muscles, coughing fit), irritations of skin and pustules on hand balls (30 %), stretching and cracking of skin (21 %), stomach pains (22 %, caused by the inhalation of pollen). The irritations of skin continue for one to two weeks. Apart from farmer interviews we have started to identify major secondary plant components in *Parthenium* at different developmental stages. For some of the identified substances we have looked in mouse experiments into the allergic potential. The statistical evaluation of the results is still ongoing.

Parthenium is an aggressive colonizer of wasteland, roadsides, railsides, watercourses, cultivated fields and overgrazed pastures. The impact on animal and human as well as the economic loss due to spreading of *Parthenium* in Ethiopia is severe.

Keywords: Ethiopia, human health, parthenin, parthenium hysterophorus