Histological, Biochemical, and Hematological Effects of Goniothalamin on Selective Internal Organs of Male Sprague-Dawley Rats

Fahmi Kaid, 1 A. M. Alabsi, 1,2 Nashwan Alafifi, 1 Rola Ali Saeed, 2 May Ameen Al-koshab, 3 Anand Ramanathan 4, 5 and A. M. Ali 4, 5, 6

1 Department of Oral and Craniofacial Sciences, Faculty of Dentistry, University of Malaya, 58633 Kuala Lumpur, Malaysia
2 Department of Oral Biology and Biomedical Sciences, Faculty of Dentistry, MAHSA University, Penang, Malaysia
3 Department of Oral and Maxillofacial Clinical Sciences, Faculty of Dentistry, University of Malaya, 50603 Kuala Lumpur, Malaysia
4 Faculty of Biotechnology, University Sultan Zainal Abidin, 22200 Bentong, Terengganu, Malaysia
5 Institute of Agrobiotechnology, Universiti Sultan Zainal Abidin, 22200 Bentong, Terengganu, Malaysia
6 Natural Medicine Research Centre, Universiti Islam Malaysia, 63000, Cyberjaya, Selangor Darul Ehsan, Malaysia

Correspondence should be addressed to A. M. Alabsi; aiealabsi@yahoo.com

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Goniothalamin (GTN) is an isolated compound from several plants of the genus Goniothalamus, and its anticancer effect against several cancers was reported. However, there is no scientific data about effects of its higher doses on internal organs. Accordingly, this study aimed to evaluate the acute and subacute effects of higher doses of GTN on the hematology, biochemistry, and histology of selected internal organs of male Sprague-Dawley rats. In acute study, 35 rats were distributed in 5 groups (n=7) which were intraperitoneally (IP) injected with a single dose of either 100, 200, 300, 400, or 500 mg/kg of GTN, while extra 7 rats serve as a normal control. In subacute study, 7 rats were IP-injected with a daily dose of 42 mg/kg of GTN for 14 days, while another 7 rats serve as a normal control group. The normal controls in both studies were IP-injected simultaneously with 2 ml/kg of 10% DMSO in PBS. At the end of both tests, rats were sacrificed to collect blood for hematology and biochemistry and harvest liver, kidneys, lungs, hearts, spleens, and brains for histology. During acute and subacute exposure, no abnormal changes were observed in the hematology, biochemistry, and histology of the internal organs. However, the 300, 400, and 500 mg/kg of GTN during acute exposure were associated with morbidities and mortalities. Ultimately, GTN could be safe up to the dose of 200 mg/kg, and the dose of 42 mg/kg of GTN was tolerated well.