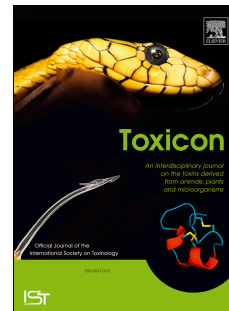


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Effects of long-term administration of *Senna occidentalis* seeds on the hematopoietic tissue of rats

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1 **EFFECTS OF LONG-TERM ADMINISTRATION OF *SENNA OCCIDENTALIS* SEEDS**
2 **ON THE HEMATOPOIETIC TISSUE OF RATS**

3
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9
10 **Abstract**

11 *Senna occidentalis* (*S. occidentalis*) is a toxic leguminous plant that contaminates
12 crops and has been shown to be toxic to several animal species. All parts of the plant
13 are toxic, but most of the plant's toxicity is due to its seeds. Despite its toxicity, *S.*
14 *occidentalis* is widely used for therapeutic purposes in humans. The aim of the present
15 work was to investigate, for the first time, the effects of the chronic administration of *S.*
16 *occidentalis* seeds on hematopoietic organs, including the bone marrow and spleen.
17 Fifty male Wistar rats were divided into five groups of 10 animals. Rats were treated
18 with diets containing 0% (control), 0.5% (So0.5), 1% (So1), or 2% (So2) *S. occidentalis*
19 seeds for a period of 90 days. Food and water were provided *ad libitum*, except to pair-
20 fed (PF) group which received the same amount of ration to those of So2 group,
21 however free of *S.occidentalis* seeds. It was verified that rats treated with 2% *S.*
22 *occidentalis* seeds presented changes in hematological parameters. The blood
23 evaluation also showed a significant decrease of the Myeloid/Erythroid (M/E) ratio.
24 Chronic treatment with *S. occidentalis* promoted a reduction in the cellularity of both the
25 bone marrow and spleen. Additionally, we observed changes in bone marrow smears,
26 iron stores and spleen hemosiderin accumulation. Histological analyses of bone
27 marrow revealed erythroid hyperplasia which was consistent with the increased
28 reticulocyte count. These findings suggest that the long-term administration of *S.*
29 *occidentalis* seeds can promote blood toxicity.

30 **Key words:** *Senna occidentalis*; blood toxicity; bone marrow; erythroid hyperplasia,
31 rats.

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