

Abstract

Effect of *Santolina chamaecyparissus* on Physiological Parameters: Data from an Animal Model of Mammary Cancer [†]

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Abstract: Breast cancer is the most common cancer worldwide. *Santolina chamaecyparissus* L. has successfully inhibited the MCF-7 cancer cell line. This study aims to evaluate the chemopreventive effects of *S. chamaecyparissus* aqueous extract (SCE) on female rats' physiological parameters with mammary cancer induced by *N*-methyl-*N*-nitrosourea (MNU). The institutional ethics committee approved this study. Twenty-eight four-week-old female Wistar rats were divided into Control, MNU-induced (IND), SCE and SCE+IND. SCE was supplemented with drinking water (120 µg/mL). At 50 days of age, MNU was intraperitoneally administered. Humane endpoints were evaluated weekly. After twenty-one weeks, animals were sacrificed by ketamine/xylazine overdose and blood was collected. A complete blood count was performed using an automated haematology analyser. An autoanalyzer was used to measure serum markers (albumin, cholesterol, glucose and triglycerides). SCE's chemical characterisation was performed by LC-MS, as it found nineteen phenolic compounds, the main molecules were myricetin-*O*-glucuronide and 1,3-*O*-dicafeoylquinic acid. Regarding haemoglobin concentration, there was a difference ($p = 0.050$) between SCE and Control (16.38 ± 0.41 g/dL and 15.18 ± 0.29 g/dL, respectively). Mean Platelet Volume differed between SCE+IND (8.29 ± 0.15 fL) and IND (9.03 ± 0.26 fL) ($p = 0.014$). Platelet Distribution Width differed between 9.06 ± 0.14 fL (SCE + IND) and 10.58 ± 0.42 fL (IND) ($p < 0.001$), but also between SCE (8.78 ± 0.16 fL) and SCE + IND versus control (9.86 ± 0.17 fL) ($p = 0.007$ and $p = 0.034$, respectively). SCE had no effect on the humane endpoints or serum markers. Platelet size appears to have been significantly affected by SCE. SCE supplementation had no effect on liver or kidney function or the well-being of the animals, implying it could be a viable treatment option for breast cancer. Histological analysis will help confirm SCE's toxicological profile.

Keywords: mammary cancer; natural compounds; *Santolina chamaecyparissus*; Wistar rats

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Institutional Review Board Statement: This study was approved by an Ethics Review Body (“ORBEA—Órgão Responsável pelo Bem-Estar e Ética Animal”) under reference 834-e-CITAB-2020.

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Data Availability Statement: Data is contained within the article.

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