Chemopreventive potential of *Santolina chamaecyparissus* against MNU-induced mammary cancer in female Wistar rats

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INTRODUCTION

Breast cancer is the **most often diagnosed** cancer worldwide, with the **greatest fatality** rate among women in 2021. *Santolina chamaecyparissus* L. has been shown to have **anti-diabetic**, **immunomodulatory**, and **anti-cancer** properties. It has been shown to successfully **inhibit** cancer cells' **proliferation**, especially the **human breast adenocarcinoma** (MCF-7) cell line.

AIM

This study's goal was to evaluate the **chemopreventive potential** of a *Santolina chamaecyparissus* aqueous extract (SCE) on *N*-methyl-*N*-nitrosourea (MNU)-induced **mammary cancer** in **female Wistar rats**.

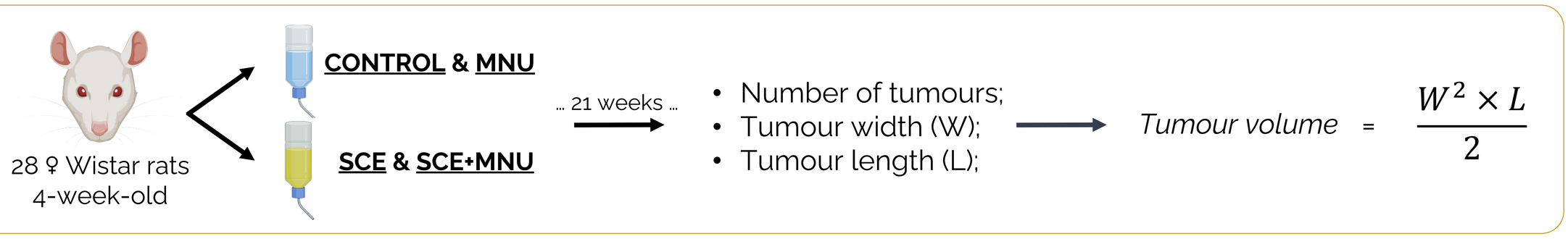
METHODOLOGY

This study was **approved** by UTAD's *ORBEA*, under reference **834-e-CITAB-2020**!

SCE was supplemented in **drinking water** (120 µg/mL) *ad libitum* and replaced every 2-3 days due to the compounds' stability.

A total of **nineteen compounds** were identified in the extract, being myricetin-*O*-glucuronide and 1,3-*O*-dicaffeoylquinic acid the main compounds found.

At **50 days of age**, the MNU was administered by **intraperitoneal** route. Humane endpoints analysis was performed weekly. Induced animals were palpated twice a week. After twenty-one weeks, animals were sacrificed by ketamine/xylazine overdose.



RESULTS

Two animals from the **MNU group** were **sacrificed** before the experiment's completion, because they reached the **Humane endpoints score** established. The tumour incidence in **SCE+MNU** (28.57%) was **lower** than in **MNU** (57.14%). MNU group had a **higher** tumour **weight** (Fig. 1a) than SCE+MNU group and a larger tumour **volume** (Fig. 1b) than SCE+MNU. In MNU group, the first tumour appeared during the **ninth week**; in SCE+MNU, it only appeared on the **sixteenth week** (Fig. 2).

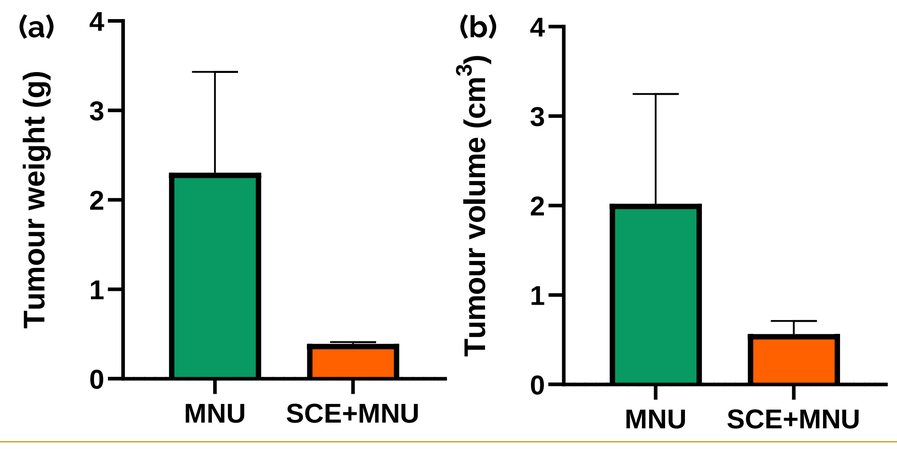


Figure 1. Tumour weight (a) and volume (b) of tumours from the induced groups. Data are expressed as mean ± standard error .

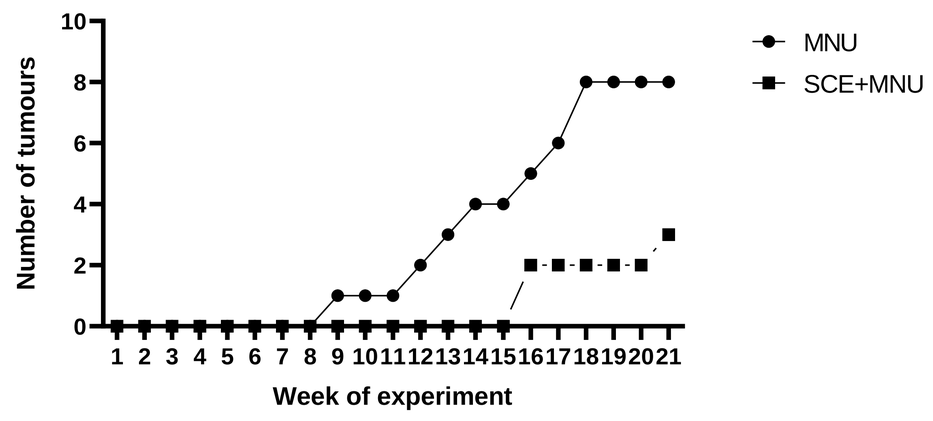


Figure 2. Number of tumours felt by palpation each week of the experimental trial.

CONCLUDING REMARKS

Despite the lack of statistically significant differences between groups, the absence of mortality in SCE+MNU, as well as the lower values in each parameter, suggest that *Santolina chamaecyparissus* has an interesting potential as a chemoprotective agent. Histopathological analysis will help understand this extract's impact in oncogenesis.

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