

Animal care and use statement: The animal protocol was designed to minimize pain or discomfort to the animals. Animals were housed separately in standard polypropylene cages with a wire mesh top, kept under standard conditions, including temperature (23 ± 1 °C), relative humidity ($55\% \pm 10\%$), and 12/12 h light/dark cycle and fed a standard pellet diet and water ad libitum for 30 days prior to experimentation. Intragastric gavage administration was carried out with conscious animals, using straight gavage needles appropriate for the animal size (180-200 g body weight: 2 inch length, 2 mm ball diameter). All animals were euthanized by (40 mL/L Ketamine, 5 mL/L Xylazine, 0.1 mL/100 g body weight) for colon tissue collection.