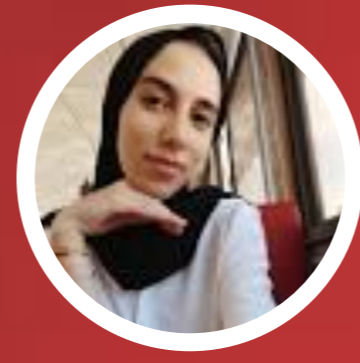


Exploring the Therapeutic Potential of *Artemisia herba-alba* in Preventing Chronic Colitis

Hicham Wahnou^{1,*} Martin Ndayambaje¹ Zaynab Ouadghiri¹ Oumaima Chgari¹ Soufyane Hba¹ Youness Limami² Mounia Oudghiri¹



* E-mail address: hwwahnou@gmail.com

RATIONAL

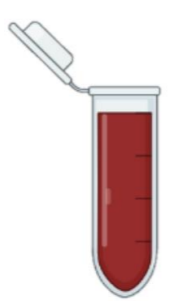
- Chronic inflammatory** diseases, such as colitis, are major global health concerns, often requiring long-term pharmacological treatments that may have significant side effects [1]. This has driven interest in alternative, natural-based therapies with fewer adverse effects. *Artemisia herba-alba* (AHA), a plant with a history of medicinal use, has been reported for its potential anti-inflammatory properties [2]. However, its precise effects on carrageenan (CNG)-induced colitis remain underexplored.
- This study investigates the impact of AHA extract on body weight, colon morphology, and histopathological markers in a murine model of colitis, providing new insights into its protective role against inflammation.



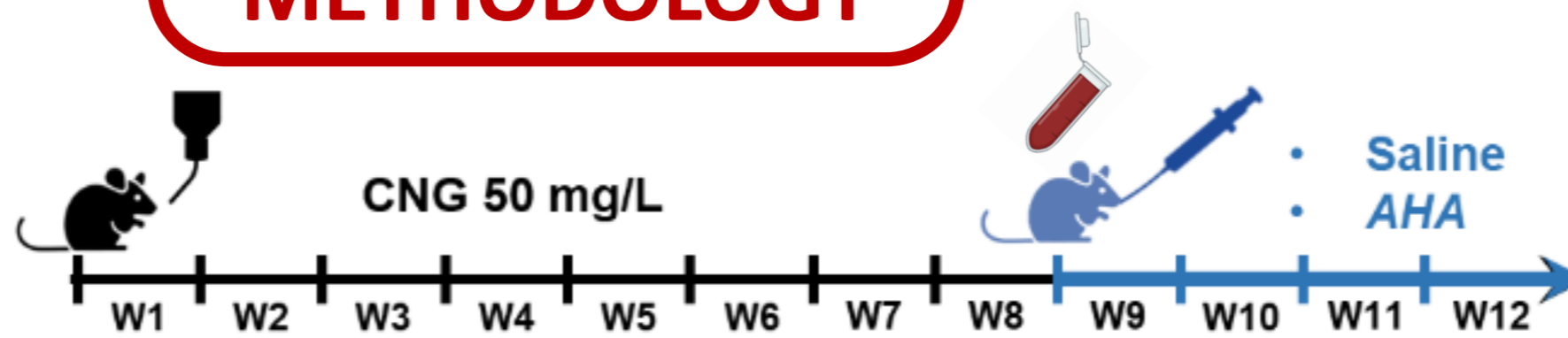
METHODOLOGY



Maceration
 72h
 EtOH:H₂O 7:3



Hydroethanolic extract



- Body Weight
- Colon Length
- Histopathology

Figure 1. A. *Artemisia herba-alba* hydroethanolic extract preparation; B. Swiss albino mice were treated with carrageenan (i-CNG) for 12 weeks (W1-W12), and with AHA extract for the last 4 weeks (W9-W12).

RESULTS

Body Weight Change

- Over the 12-week period, AHA treatment at both 250 mg/kg and 500 mg/kg effectively mitigated carrageenan (CNG)-induced weight loss, with the higher dose showing more pronounced improvement and consistent body weight recovery.

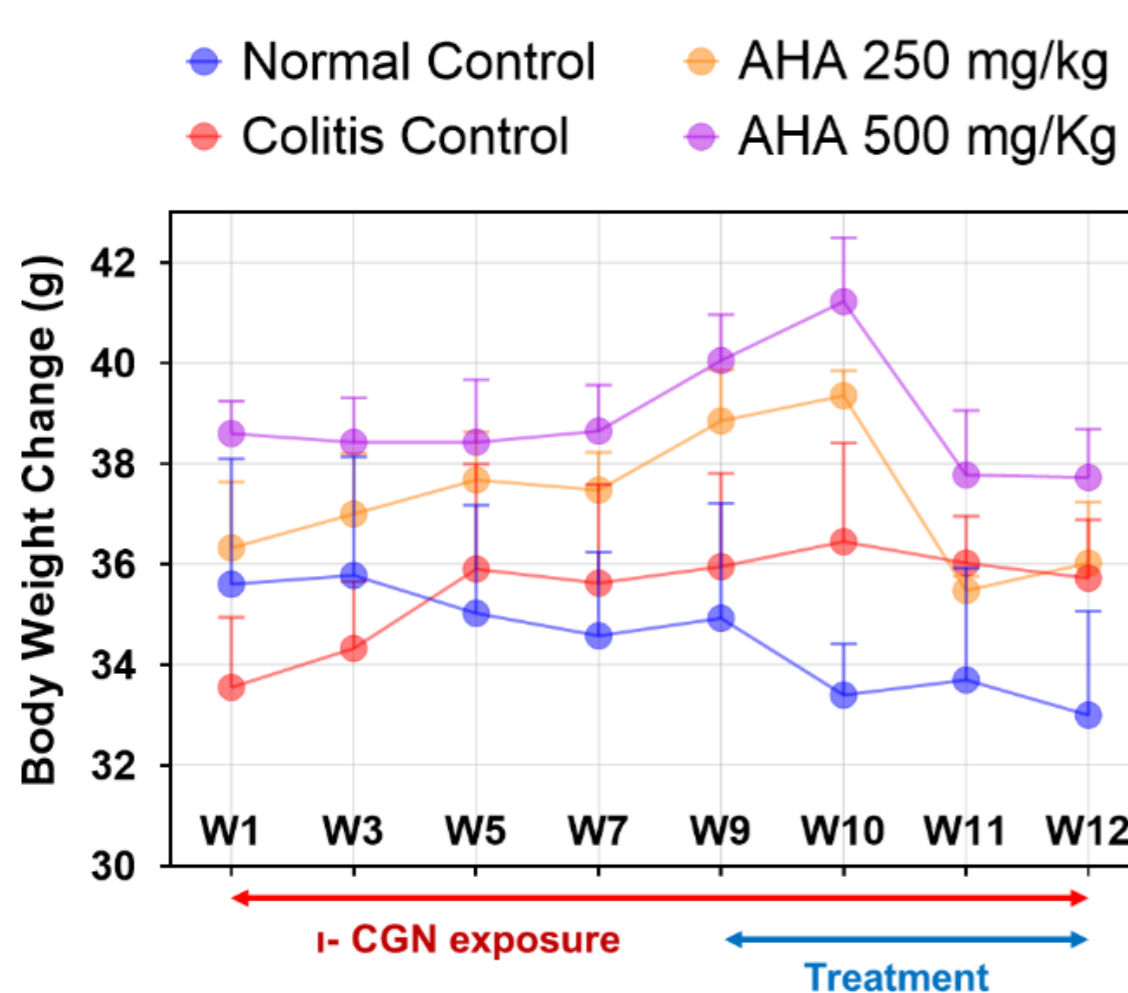


Figure 2. Variation of body weight (g) during the experimental weeks. Data are mean ± SEM of four mice.

Colon Morphology and Length

- Morphology:** The AHA-treated groups displayed notable preservation of colon integrity, particularly at the 500 mg/kg dose, which visibly reduced the CNG-induced colon shortening and deformation.
- Length:** AHA administration, especially at 500 mg/kg, significantly protected against carrageenan-induced colon shortening, maintaining colon length closer to that of the normal control group.

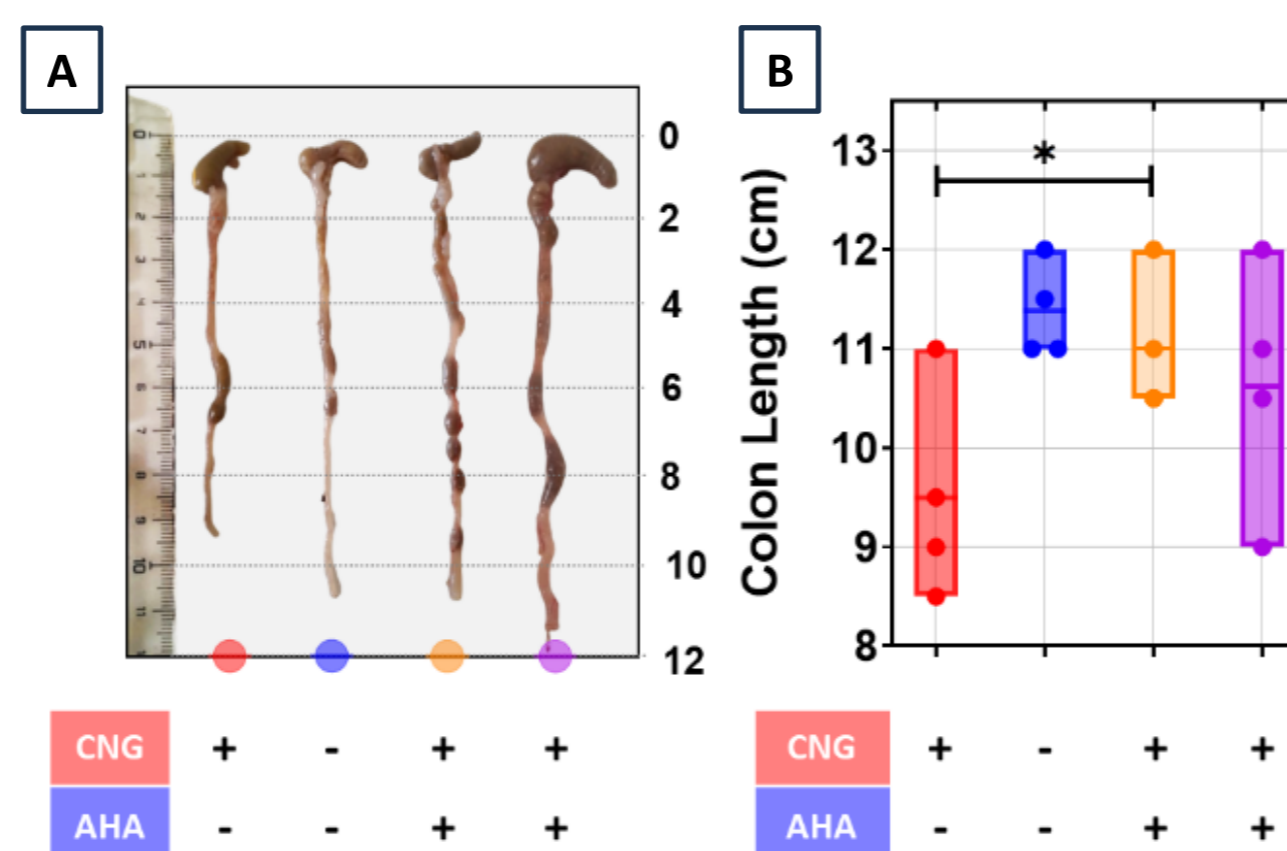


Figure 3. A. Representative picture of colon tissue length and morphology, and B. Measurement of colon length (cm); Data are mean ± SEM of four mice. *p < 0.05 versus colitis control group. The colon images are a representative sample of all the colon tissues.

Histopathological Change

- Histopathological examination showed intact mucosal architecture in the healthy control, while the colitis control had immune cell infiltration without significant structural damage; AHA treatment at 250 mg/kg reduced neutrophil infiltration, and at 500 mg/kg, provided greater protection with minimal immune infiltration.

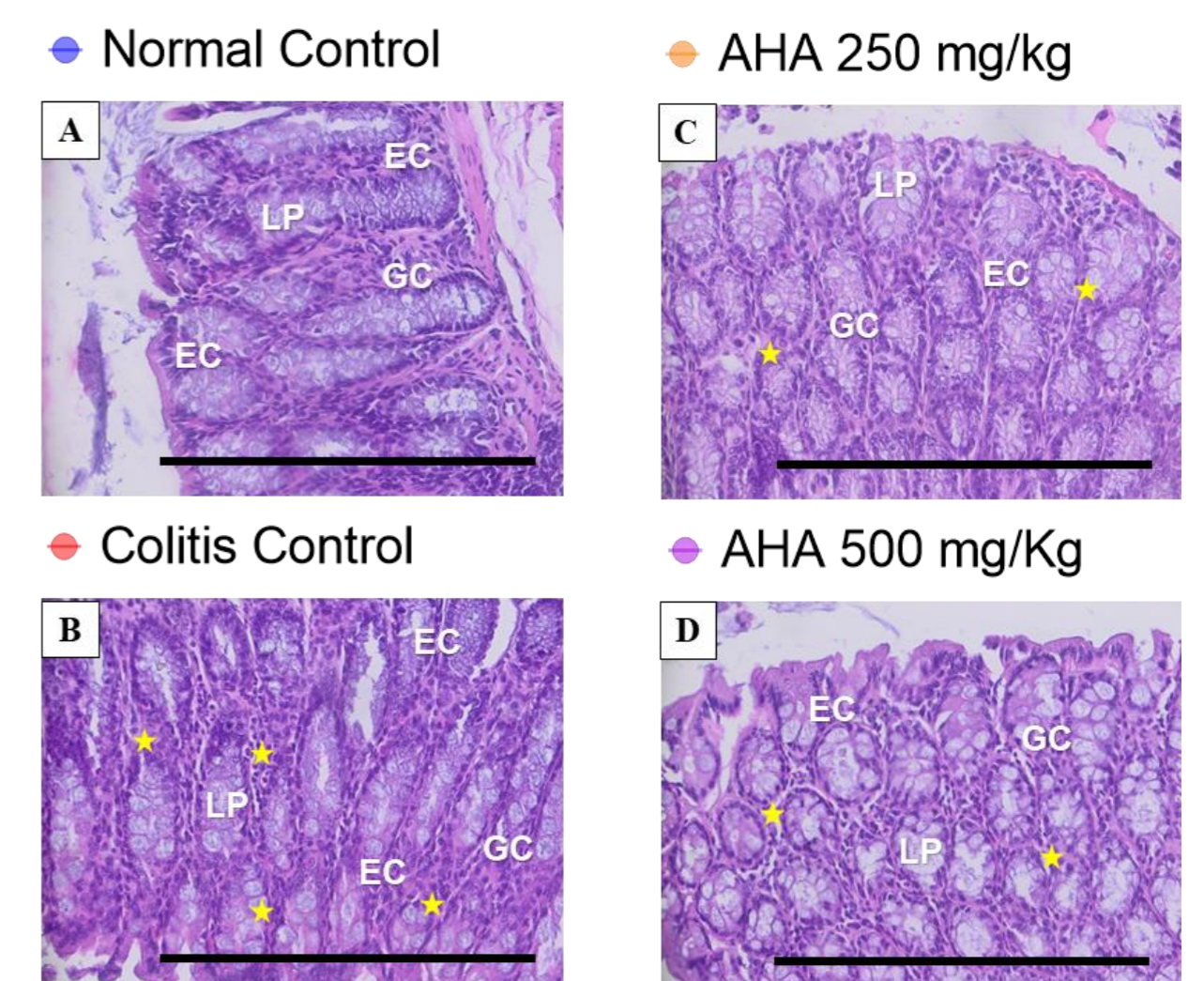


Figure 4. Effect of AHA on the histopathology of the colon in colitis mice at 40× magnification. LP: lamina propria; EC: epithelial cells; and GC: goblet cells. The images are a representative sample of all the examined tissues; Scale bar: 400µm.

CONCLUSION

- AHA extract reduces carrageenan-induced colitis in mice.
- The 500 mg/kg dose offers the best protection for colon integrity.
- AHA shows promise as a natural anti-inflammatory treatment.

REFERENCES

- [1] M'Koma AE. Inflammatory bowel disease: an expanding global health problem. Clin Med Insights Gastroenterol. 2013; 6:33-47. doi: 10.4137/CGast.S12731. PMID: 24833941; PMCID: PMC4020403.
- [2] Houti, H.; Ghanmi, M.; Satrani, B.; Mansouri, F.E.; Cacciola, F.; Sadiki, M.; Boukir, A. Moroccan Endemic Artemisia herba-alba Essential Oil: GC-MS Analysis and Antibacterial and Antifungal Investigation. Separations 2023, 10, 59. doi:10.3390/separations1001005