

**Characterization of Bio-active Compounds Essential for Blood Coagulation  
in the Crude Extracts of *Tradescantia zebrina*, *Tagetes minuta* and  
*Codiaeum variegatum* Leaves**

**Gakuo Grace, Osano Aloys and Bakari Chaka**

Department of Mathematics and Physical Sciences, Maasai Mara  
University, Kenya.

*gracegakuo32@gmail.com*

**Abstract**

Many commercial drugs used for blood clotting are expensive and have associated side effects. The extracts of *Tagetes minuta*, *Codiaeum variegatum* and *Tradescantia zebrina* are used for blood clotting. These extracts are highly efficient and have no known side-effects. This study aimed at characterizing crude extracts of these plant species used to accelerate blood clotting. An independent measures experimental design was used in the study. Place and duration of study: The research was conducted between 21st September, 2018 and 21st May, 2019. The study was conducted in Maasai mara university, Kenya and Multimedia university of Kenya. Extracts of these herbs were obtained and analyzed for absorption bands, functional groups, bio-metal concentrations, physical-chemical parameters, phytochemicals and antimicrobial activity. Test for blood clotting factors (calcium and vitamin K) was also conducted. All extracts had common functional group peaks at 2800-3500  $\text{cm}^{-1}$  (carboxylic OH), 1680  $\text{cm}^{-1}$  (carbonyl), and 1035  $\text{cm}^{-1}$  (C-O stretch). The extracts had an average pH of  $6.590 \pm 0.702$  and conductivity of  $0.580 \pm 0.079 \text{ mS}$ . The average solubility in distilled water was  $16.670 \pm 1.534 \text{ g/100 ml}$  water at  $37^\circ\text{C}$ . The extracts were found to be abundant in iron, copper and phytochemicals. All extracts portrayed moderate inhibition to *E. coli* bacteria and *C. albicans* fungi but mild inhibition towards *S. aureus* bacteria. The extracts had trace amounts of Vitamin K and moderate amounts of calcium.

**Keywords:** Blood clotting; *Tradescantia zebrina*; *Tagetes minuta*; *Codiaeum variegatum*.