

INVESTIGATING THE ANTIBACTERIAL ACTIVITY OF NAMIBIAN HONEY

Namukwambi, FK¹., Hiwilepo-Van Hal, P¹., Blaxland, JA²., Baillie, L²

¹Department of Food Science and Technology, University of Namibia, Neudamm Campus, Namibia

²School of Pharmacy and Pharmaceutical Sciences, College of Biomedical and Life Sciences, Cardiff University
Cardiff. CF10 3NB. Wales

e-mail: knamukwambi@gmail.com

Abstract

Honey is historically renowned for its medical significance and has been used for thousands of years as a treatment for maladies such as bacterial infections. This study investigated the antimicrobial activity of Namibian honey samples against pathogens, including MRSA and multidrug resistant *Klebsiella pneumoniae*, isolate and identify the responsible compounds. Honey samples were collected in Namibia from:

An agar disc diffusion assay was employed to determine the antimicrobial activity of Namibian honey against methicillin-resistance *Staphylococcus aureus* MRSA, methicillin-sensitive *Staphylococcus aureus* (MSSA), *K. pneumoniae* and *Escherichia coli*. Honey samples were extracted using differing polarity solvents, these were separated using thin layer chromatography; a modified bioautographic assay identified bioactive components.

Two out of three Namibian honey samples showed antibacterial activity (4.833mm (n=9, standard deviation (SD) =0.816), against target bacterial strains: Windhoek honey showed greatest activity against Gram-positive bacteria; Neudamm honey against Gram-negative. Methanol extracts produced the greatest mass, indicating most honey compounds were polar molecules.

Namibian honey samples demonstrated inhibitory activity against MRSA, MSSA, *K.pneumoniae* and *E.coli*. Hydrogen peroxide is not main components which contribute to antibacterial activity.

Keywords: Antibacterial activity, Namibian Honey, Zone of Inhibitions, Hydrogen peroxide