

Antioxidant potentials and anti-inflammatory properties of methanol extracts of ripe and unripe peels of *Ananas comosus* (L.) Merr.

Babatunde OSO*,¹ Ige OLAOYE*,¹ Emmanuel EKPO,¹ and Godswill AKHIGBE²

¹Department of Biochemistry, McPherson University, Seriki Sotayo, Ogun State, Nigeria

²Department of Chemistry, McPherson University, Seriki-Sotayo, Ogun State, Nigeria

Abstract. Studies suggest that extracts from plant materials could play protective roles against various disorders associated with the interplay between oxidative response and inflammatory disorders. The aim of this study was to investigate the potential antioxidant and anti-inflammatory properties, and phytochemical analyses of methanol extract of ripe and unripe peels of *Ananas comosus* (L.) Merr. The antioxidant properties were investigated through the analyses of ferric ion reducing antioxidant capacities, ascorbic acid equivalent antioxidant capacities, and nitric oxide scavenging capacities of the extracts. The anti-inflammatory potentials of the extracts were assessed through albumin denaturation inhibition and proteinase inhibition assays. Further investigation was carried out on the phytochemical composition of the extracts. There was no significant difference in the antioxidant potentials of the extracts assessed through the reduction of ferric ion. However, the ascorbic acid equivalent capacities and nitric oxide scavenging potential revealed that the antioxidant potentials of the extract of the unripe peel of *A. comosus* were significantly higher ($p < 0.05$) than the antioxidant potentials of the extract of ripe peel. Albumin denaturation inhibitory potential was significantly higher ($p < 0.05$), but there was no significant difference in the protease inhibitory potentials of both extracts. The estimated amounts of total flavonoids present in the extract of ripe peel of *A. comosus* were significantly higher ($p < 0.05$) than the estimates in the extract of unripe peels. This study gave a comprehensive insight into the antioxidant properties, anti-inflammatory properties and phytochemical compositions of the methanol extracts of the peels of ripe and unripe *A. comosus* which could be exploited as an alternative and complementary medicine in the treatment of different ailments associated with inflammatory disorders.

Keywords: *Ananas comosus* (L.) Merr.; ripening; peel; total phenolics; antioxidant; anti-inflammation.

*Corresponding author. E-mail addresses: basjoe08@gmail.com (Babatunde Oso); igelarinloye@gmail.com (Ige Olaoye).