

Article

Enzyme Inhibitory Potential of *Ligustrum lucidum* Aiton Berries

Vanessa B. Paula ¹, Teresa Delgado ², Maria Graça Campos ^{3,4} , Ofélia Anjos ^{2,5,6} 
and Leticia M. Estevinho ^{7,*}

¹ Escola Superior Agrária, Instituto Politécnico de Bragança, 5300-253 Bragança, Portugal; vanessapaula@ipb.pt

² Centro de Biotecnologia de Plantas da Beira Interior, 6001-909 Castelo Branco, Portugal; teresadelgado86@hotmail.com (T.D.); ofelia@ipcb.pt (O.A.)

³ Observatório de Interações Planta-Medicamento (OIPM) | Faculdade de Farmácia, Universidade de Coimbra, Campus das Ciências da Saúde, 3000-548 Coimbra, Portugal; mgcampos@ff.uc.pt

⁴ Centro de Química de Coimbra (CQC, FCT Unidade 313) (FCTUC) Universidade de Coimbra, 3004-535 Coimbra, Portugal

⁵ Instituto Politécnico de Castelo Branco, 6001-909 Castelo Branco, Portugal

⁶ Centro de Estudos Florestais, Instituto Superior de Agronomia, Universidade Lisboa, 1349-017 Lisboa, Portugal

⁷ Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, 5300-252 Bragança, Portugal

* Correspondence: leticia@ipb.pt; Tel.: +351-273-303-342

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Abstract: *Ligustrum lucidum* Aiton and its berries have been used in Chinese traditional medicine for around two thousand years. In the present study, *L. lucidum* berries harvested in two regions of Portugal were studied. Haemolytic activity and inhibition of oxidative haemolysis as well as the enzyme inhibitory activities (α -amylase enzyme and acetylcholinesterase) were assessed. Results suggest that the different biological activities varied according to the region where samples were collected. Results demonstrated that the sample obtained from region R1 was the most efficient extract for all parameters evaluated, presenting the lowest values of IC_{50} , $10.67 \pm 0.46 \mu\text{g/mL}$ for the inhibition of erythrocyte oxidative haemolysis, $58.28 \pm 3.77 \mu\text{g/mL}$ for the α -amylase enzyme and $67.67 \pm 2.10 \mu\text{g/mL}$ for the acetylcholinesterase inhibition. *L. Lucidum* berries may be an interesting source of compounds for use in the development of the therapeutic armamentarium for diseases where enzymatic disruption is believed to play a role.

Keywords: *Ligustrum lucidum* Aiton berries; diabetes; Alzheimer's disease; enzyme inhibitory potential

1. Introduction

Ligustrum lucidum Aiton is a plant that naturally occurs in hot and humid climates, namely in the east, south and south-west of China, South Korea and India [1]. However, it has been reported to be one of the most invasive plant species in the world, having global relevance. In ancient times, their leaves and berries were harvested, dried and applied in the traditional medicine for several purposes, such as premature menopause, blurred vision, cataracts, tinnitus, rheumatic pains, palpitations, backache and insomnia [2]. Several studies were performed with the aim of characterizing the composition of *Ligustrum lucidum* fruits, revealing the presence of triterpenoids, iridoids, flavones, phenolic glucosides and other less abundant components, among which are polysaccharides, amino acids, fatty acids, volatile components, pigments and other minor elements [3].