



Kynurenic acid in human saliva – does it influence oral microflora?

Damian Kuc¹, Mansur Rahnama², Tomasz Tomaszewski², Wojciech Rzeski^{3,4}, Katarzyna Wejksza⁴, Teresa Urbanik-Sypniewska⁵, Jolanta Parada-Turska⁶, Marian Wielosz¹, Waldemar A. Turski^{1,3}

¹Department of Clinical and Experimental Pharmacology; ⁶Department of Rheumatology and Connective Tissue Diseases, Medical University, Jaczewskiego 8, PL 20-090 Lublin, Poland

²Department of Oral and Maxillofacial Surgery, Medical University, Karmelicka 7, PL 20-081 Lublin, Poland

³Department of Toxicology, Institute of Agricultural Medicine, Jaczewskiego 2, PL 20-950 Lublin, Poland

⁴Department of Virology and Immunology, ⁵Department of Microbiology, Institute of Microbiology and Biotechnology, Maria Curie-Skłodowska University, Akademicka 19, PL 20-033 Lublin, Poland

Correspondence: Waldemar Turski, e-mail: waldemar.turski@am.lublin.pl

Abstract:

Kynurenic acid (KYNA) is an endogenous antagonist of $\alpha 7$ nicotinic receptors and all ionotropic glutamate receptors. Its neuroprotective activity has been suggested. In this study, the presence of KYNA in human saliva and its potential bactericidal role was investigated. KYNA was found in all samples of human saliva with mean concentration of 3.4 nM. The concentration of KYNA in saliva obtained from patients with odontogenic abscesses was 3.5 times higher than in healthy subjects. We have shown that the human gingival fibroblasts produce KYNA and an inflammatory stimulant, lipopolysaccharide, enhanced its synthesis *in vitro*. The bactericidal effect of KYNA was also presented. We hypothesize that KYNA may contribute to the control of oral microflora.

Key words:

kynurenic acid, saliva, human, fibroblast, bacteria
