

Chemical Structures and Biological Activities of Neuroprotective Substances from Microbial Metabolites

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It has been known that glutamatergic system was involved in the development of neuronal cell death following a variety of traumas including ischemia, hypoglycemia and epilepsy and certain neurodegenerative diseases such as Huntington's chorea, Parkinson's disease, Alzheimer's disease and AIDS neuropathology. N-methyl-D-aspartate (NMDA) and α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptors have been also proposed as one of the important contributors to neuronal death in brain. Thus, intense efforts have been made on the discovery of compound which blocks these receptors function for a potential therapeutic remedy of these ailments. In our research on novel neuroprotective compounds against NMDA and kainate/AMPA-induced neurotoxicity using primary cultured neurons, we have isolated novel neuroprotective compounds of microbial origin. We herein present the isolation, structure determination, biological activities, and action mechanisms of these compounds.