

7<sup>th</sup> World Congress on

# Mass Spectrometry

June 20-22, 2018 | Rome, Italy

## Neuroprotective compound from an endophytic fungus, *Colletotrichum sp.* JS-0367

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*Colletotrichum sp.* JS-0367 was isolated from *Morus alba* (mulberry), identified, and cultured on a large scale for chemical investigation. One new anthraquinone (1) and three known anthraquinones (2-4) were isolated and identified using spectroscopic methods including 1D/2D-NMR and HR-ESI-MS. Although neuroprotective effects of some anthraquinones have been reported, the biological activities of the four anthraquinones isolated in this study have not been reported. Therefore, the neuroprotective effects of these compounds were determined against murine hippocampal HT22 cell death induced by glutamate. Compound 4, evariquinone, showed strong protective effects against HT22 cell death induced by glutamate via inhibition of intracellular reactive oxygen species (ROS) accumulation and Ca<sup>2+</sup> influx triggered by glutamate. Immunoblot analysis revealed that compound 4 reduced phosphorylation of MAPKs (JNK, ERK1/2, and p38) induced by glutamate. Furthermore, compound 4 strongly attenuated glutamate-mediated apoptotic cell death.

### Recent Publications

1. Pickhardt M, Gazova Z, von Bergen M, Khlistunova I, Wang Y, *et al.* (2005) Anthraquinones inhibit Tau aggregation and dissolve Alzheimer's paired helical filaments *in vitro* and in cells. *Journal of Biological Chemistry* 280:3628–3635.
2. Bringmann G, Lang G, Steffens S, Gunther E, Schaumann K (2003) Evariquinone, isoemicellin, and stromemycin from a sponge derived strain of the fungus *Emericella varicolor*. *Phytochemistry* 63:437–443.
3. Nakao N and Brundin P (1998) Neurodegeneration and glutamate induced oxidative stress, *Progress in Brain Research* 116:245–263.
4. Tan S, Wood M and Maher P (1998) Oxidative stress induces a form of programmed cell death with characteristics of both apoptosis and necrosis in neuronal cells. *Journal of Neurochemistry* 71:95–105.
5. Gonzalez A G, Barrera J B, Davila B B, Valencia E and Dominguez X A (1992) Anthraquinones from *Cassia greggii*. *Phytochemistry* 31:255–258.

### Biography

Sang Hee Shim has her expertise in Natural Products Chemistry. She has conducted studies on bioactive secondary metabolites from medicinal plants and their associated microbiomes including endophytes. She has also investigated a lot of bioactive secondary metabolites from halophyte-derived microbial cultures and is trying to elucidate interactions between plants and their endophytes.

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