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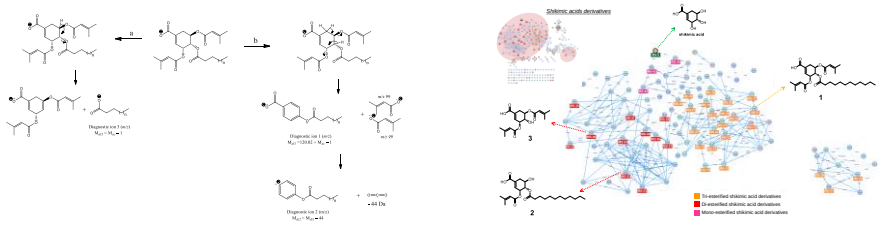
# *CHARACTERIZATION OF BIOACTIVE SHIKIMIC ACID DERIVATIVES FROM SENECIO OLEOSUS GUIDED BY DIAGNOSTIC IONS AND MOLECULAR NETWORKING*

Nathália da Silva Malaco[1], **Thaíma Oliveira Souza e Silva[1*]**, Anderson Valdiney Gomes Ramos[1], Bianca Del Bianco Sahm[2], Marta Regina Barroto do Carmo[3], Letícia Costa Lotufo[2], Maria Helena Sarragiotto[1], Debora Cristina Baldoqui[1]

ra141046@uem.br

*1-Departamento de Química, Universidade Estadual de Maringá, Av. Colombo 5790, Maringá, PR, Brazil, 2 Departamento de Farmacologia, Instituto de Ciências Biomédicas, Universidade de São Paulo, Av. Prof. Lineu Prestes, 1524, São Paulo, SP, Brazil, 3-Departamento de Biologia Geral, Universidade Estadual de Ponta Grossa, Av. Carlos Cavalcanti, 4748, Ponta Grossa, PR, Brazil*

*Senecio* is a large and chemically diverse genus comprising over 1,200 species. In Brazil, approximately 68 species are found, predominantly in rural and mountainous areas. This study aimed to investigate specialized metabolites of *Senecio oleosus* through isolation and dereplication strategies, and to evaluate the antiproliferative activity against tumor cell lines. Three new compounds were isolated: 3α,5β-disenecioyloxy-4α-dodecanoyloyloxy-shikimic acid (**1**), 3α-senecioyloxy-4α-dodecanoyloxy-shikimic acid (**2**) and 3α,5β-disenecioyloxy shikimic acid (**3**). The fragmentation patterns and diagnostic ions were established based on MS/MS spectra of these isolated compounds. The cleavage of ester linkages at positions C-3 and C-5 produced a fragment ion at *m/z* $M_{di1}$ = 120.02 + $M_{ac}$ – 1, corresponding to a shikimate core retaining the ester moiety at C-4. Subsequent loss of $CO_2$ yielded a fragment at *m/z* $M_{di2}$ = $M_{di1}$ – 44. The base peak at *m/*z $M_{di3}$ = $M_{ac}$ – 1 resulted from the loss of the fatty acid linked to C-4. Using these fragmentation patterns as a guide, and GNPS2 MS2 *m/z* highlight tool to emphasize fragment ions at *m/z* $M_{di1,}$ $M_{di2}$ and $M_{di3,}$ fifteen tri-substituted shikimic acid derivatives were putatively identified. A similar strategy enabled the detection and partial structural elucidation of shikimic acid derivatives analogous to compounds **2** and **3**. Compound **1** exhibited promising results against the HCT116 cancer cell line, with an IC50 of 10.5 µg mL-1 (20.2 µM). Esterified shikimic acid derivatives were the predominant specialized metabolites in *S. oleosus*. In total, 35 derivatives were putatively identified, and triesterified analogues demonstrated promising anticancer potential.



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