

## Cytotoxic Activity of Marine-derived Fungi *Trichoderma Longibrachiatum* Against PANC-1 Cell Lines

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**Abstract :** The search for a source of new medicinal compounds with anticancer activity from natural products has become important to resolve the ineffectiveness problem of pancreatic cancer therapy. Fungal marine microorganisms are prolific sources of bioactive natural products. In this present study, the ethyl acetate extract of cultured broth of *Trichoderma longibrachiatum* marine sponge-derived fungi exhibited selective cytotoxicity against human pancreatic carcinoma PANC-1 cells cultured under glucose-deficient conditions ( $IC_{50} = 98,4 \mu\text{g/mL}$ ). The *T. longibrachiatum* was fermented by the static method at room temperature for 60 days. The culture broth was extracted using ethyl acetate by liquid-liquid extraction method. The liquid-liquid extraction was conducted toward the ethyl extract by using 90% MeOH-H<sub>2</sub>O and n-Hexane as a solvent. The extract of 90% MeOH-H<sub>2</sub>O was fractionated by liquid extraction using by C<sub>18</sub> reversed-phase vacuum flash chromatography using mixtures of MeOH-H<sub>2</sub>O, from 50:50 to 100:0, and 1% TFA MeOH as the eluents to yield six fractions. The fraction 2 (MeOH-H<sub>2</sub>O, 70:30) and fraction 3 (MeOH-H<sub>2</sub>O, 80:20) showed moderate cytotoxicity with  $IC_{50}$  value of 119.3 and 274.7  $\mu\text{g/mL}$ , respectively. Fraction 4 (MeOH-H<sub>2</sub>O, 90:10) showed the highest cytotoxicity activity with  $IC_{50}$  value of  $< 10 \mu\text{g/mL}$ . The chemical compounds of the fractions that are responsible for cytotoxic activity are potent for further investigation.

**Keywords :** cytotoxic activity, *trichoderma longibrachiatum*, marine-derived fungi, PANC-1 cell line

**Conference Title :** ICAMNP 2022 : International Conference on Advances in Marine Natural Products

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** February 15-16, 2022