

ABSTRAK

DIYAH AYU PUSPITA SARI, 2023, *NETWORK PHARMACOLOGY* BUAH MENGGKUDU (*Morinda citrifolia*) DAN RIMPANG KUNYIT (*Curcuma longa L.*) SEBAGAI ANTI KANKER TIROID, PROPOSAL SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA. Dibimbing oleh Dr. apt. Rina Herowati, M.Si. dan Apt. Fransiska Leviana, S.Farm., M.Sc.

Kanker tiroid adalah kondisi pertumbuhan tidak normal yang terjadi pada kelenjar tiroid yang menyebabkan terjadinya tumor tiroid atau nodul tiroid. Buah mengkudu dan rimpang kunyit diprediksi berpengaruh dalam pengobatan kanker tiroid. Tujuan penelitian ini untuk melihat protein yang dapat terlibat dalam patofisiologi kanker tiroid, mengetahui protein molekuler yang dapat diprediksi sebagai target kerja dari kanker tiroid oleh senyawa-senyawa buah mengkudu dan rimpang kunyit, dan untuk mengetahui profil *network pharmacology* kandungan senyawa kimia buah mengkudu dan rimpang kunyit terhadap protein target kanker tiroid.

Penelitian ini menggunakan metode *network pharmacology*. Pengumpulan senyawa kimia buah mengkudu dan rimpang kunyit dilakukan menggunakan KNApSAcK, IJAH *Analytics*, dan jurnal-jurnal penelitian. Skrining zat aktif terhadap protein target didapatkan dari PubChem. Protein target yang dapat terlibat pada target kerja patofisiologi kanker tiroid didapatkan dari KEGG *Pathway*, dilanjutkan validasi nama gen menggunakan String. Identifikasi protein dan gen menggunakan *Swiss Target Prediction*. Visualisasi *network pharmacology* dari interaksi senyawa protein dan protein-protein menggunakan *Cytoscape*.

Hasil visualisasi profil *network pharmacology* protein target yang terlibat dalam patofisiologi kanker tiroid dengan buah mengkudu dan rimpang kunyit adalah PPARA, PPARG, EP300, NR1I2, MAP2K2, dan EGFR. Kandungan senyawa *alizarin*, *anthragallol*, *ursolic acid* pada buah mengkudu dan senyawa aktif *linoleic acid*, *oleic acid*, *palmitic acid*, *stearic acid*, *curcumin* pada rimpang kunyit dapat terbentuk *network pharmacology* dengan protein target kanker tiroid.

Kata kunci : Kanker tiroid, buah mengkudu, rimpang kunyit
network pharmacology

ABSTRACT

DIYAH AYU PUSPITA SARI, 2023, PHARMACOLOGY NETWORK OF NONI FRUIT (*Morinda citrifolia*) AND TURMERIC (*Curcuma longa* L.) AS ANTI-THYROID CANCER, THESIS PROPOSAL, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA. Supervised by Dr. apt. Rina Herowati, M.Sc. and Apt. Fransiska Leviana, S.Farm., M.Sc.

Thyroid cancer is an abnormal growth condition that occurs in the thyroid gland which causes thyroid tumors or thyroid nodules. Noni fruit and turmeric rhizome are predicted to have an effect in the treatment of thyroid cancer. The purpose of this study was to look at proteins that can be involved in the pathophysiology of thyroid cancer, to find out molecular proteins that can be predicted as targets for thyroid cancer by compounds of noni fruit and turmeric rhizome, and to determine the pharmacology network profile of the chemical compounds of noni fruit and turmeric rhizome. against thyroid cancer target proteins.

This study used the network pharmacology method. The collection of chemical compounds of noni fruit and turmeric rhizomes was carried out using KNApSAcK, IJAH Analytics, and research journals. Screening of active substances against target proteins was obtained from PubChem. Target proteins that can be involved in the pathophysiology of thyroid cancer are obtained from the KEGG Pathway, followed by validation of gene names using String. Protein and gene identification using Swiss Target Prediction. Pharmacology network visualization of protein and protein-protein interactions using Cytoscape.

The results of visualization of the network pharmacology profile of target proteins involved in the pathophysiology of thyroid cancer with noni fruit and turmeric rhizome are PPARA, PPARG, EP300, NR1I2, MAP2K2, and EGFR. The compounds containing alizarin, anthragallol, ursolic acid in noni fruit and the active compounds linoleic acid, oleic acid, palmitic acid, stearic acid, curcumin in turmeric rhizomes can form a pharmacological network with thyroid cancer target proteins.

Keywords: Thyroid cancer, noni fruit, turmeric rhizome pharmacology network