

# Sintesis senyawa turunan 2-Hidroksi-1,4-Naftokuinon menggunakan variasi aldehid aromatik dengan Katalis Iodin dan uji aktivitas antioksidan = Synthesis of 2-Hydroxy-1,4-Naphthoquinone derivatives with aromatic aldehyde variations using catalysts and antioxidant activity test

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## Abstrak

Senyawa 2-hidroksi-1,4-naftokuinon atau lawson merupakan senyawa yang terkandung dalam tanaman *Lawsonia inermis* biasa juga disebut pacar kuku. Pacar kuku merupakan tanaman yang mudah dijumpai dan di dalamnya terkandung senyawa fenolik, khususnya naftokuinon yang memiliki aktivitas biologis seperti antibakteri, antikanker, antitumor, serta berpotensi menjadi antioksidan. Melalui pendekatan reaksi multikomponen sintesis senyawa turunan 2-hidroksi-1,4-naftokuinon dengan variasi aldehida aromatik (benzaldehida, sinamaldehida, 4-hidroksi benzaldehida), hidrazin, dan katalis iodin telah berhasil disintesis. Berdasarkan hasil (senyawa 1) hasil reaksi menggunakan benzaldehida belum berhasil disintesis dengan nama IUPAC 2-(hidrazinil(fenil)metil)-3- hidroksinaftalen-1,4-dion dengan rendemen sebesar 91%, untuk (senyawa 2) hasil reaksi menggunakan sinamaldehida juga belum terbentuk 2-(1-hidrazinil-3-fenilalil)-3- hidroksinaftalen-1,4-dion dengan rendemen sebesar 91,75%, untuk (senyawa 3) dengan rendemen sebesar 87,22% belum berhasil juga membentuk senyawa 2-(hidrazinil(4- hidroksifenil)metil)-3-hidroksinaftalen-1,4-dion dari hasil reaksi menggunakan 4- hidroksi benzaldehida. Analisis produk hasil sintesis dikonfirmasi dengan KLT, UV-Vis, FTIR, dan GC-MS. Uji aktivitas antioksidan didapatkan nilai IC<sub>50</sub> dari senyawa 1 dan senyawa 2 masing-masing sebesar 204,94 dan 139,06 ppm

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2-hydroxy-1,4-naphthoquinone or lawson are compounds where is contained in the *Lawsonia inermis* plant, also commonly called pacar kuku. Pacar kuku is a plant that is easily to found and it contained in phenolics, especially that naphthoquinone derivatives have biological activities such as antibacterial, anticancer, antitumor, and have the potential to become antioxidants. Through a multicomponent reaction synthesis approach 2-hydroxy-1,4-naphthoquinone derivatives compounds with aromatic aldehyde variations; benzaldehyde; cinnamaldehyde; 4-hydroxy benzaldehyde, hydrazine, and iodine catalyst have been synthesized. Based on the results (compound 1) have not succeeded with the name IUPAC 2- (hydrazinyl (phenyl) methyl) -3- hydroxynaphthalene-1,4-dione with 91% yield, for the (compound 2) is still have not succeeded with the name (E) -2- (1-hydrazinyl- 3-phenylallyl) -3-hydroxynaphthalene- 1,4-dione with 91,75% yield, and then (compound 3) with 87,22% yield have not succeeded in forming 2- (hydrazinyl (4-hydroxyphenyl) methyl) compounds - 3- hydroxynaphthalene-1,4-dione from the reaction using 4-hydroxy benzaldehyde. The analysis of the synthesis products was confirmed by TLC, UV-Vis, FTIR, and GC-MS. The antioxidant activity test found IC<sub>50</sub> values of compounds 1 and 2 respectively 204,94 and 139,06 ppm.