

# SYNTHESIS AND ANTIOXIDANT ACTIVITY OF TETRACYCLIC COUMARINE DERIVATIVE

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In this paper we present data on the synthesis and antioxidant activity of tetracyclic coumarine derivative. Investigated substance was obtained from 2-acetyl-5,5-dimethylcyclohexene-1-ol-3-one and 4-hydroxycoumarin. First compound was turned into 2-acetyl-5,5-dimethyl-1,3-cyclohexadien-1-ol by two-step method. Michael addition of 4-hydroxycoumarin followed by cyclization gave tetracyclic coumarin derivative. Antioxidant activity of this compound was determined.

**Keywords:** organic synthesis, tetracyclic coumarine derivative, antioxidant activity.

Here in we wish to report our results on synthesis and study of antioxidant activity of tetracyclic coumarine derivative (7). The substance investigated was obtained from 2-acetyl-5,5-dimethylcyclohexene-1-ol-3-one (1) and 4-hydroxycoumarin (5) by four-step synthesis. By reacting with oxalyl chloride, hydroxydiketone (1) was converted to chlorodiketone (2), which was reduced with zinc to the endion (3), which exists in the ketodienol form (4). The Michael addition of 4-hydroxycoumarin (5) to the resulting compound gave a tricycle (6), which was converted by dehydration to tetracycle (7). (Fig. 1).

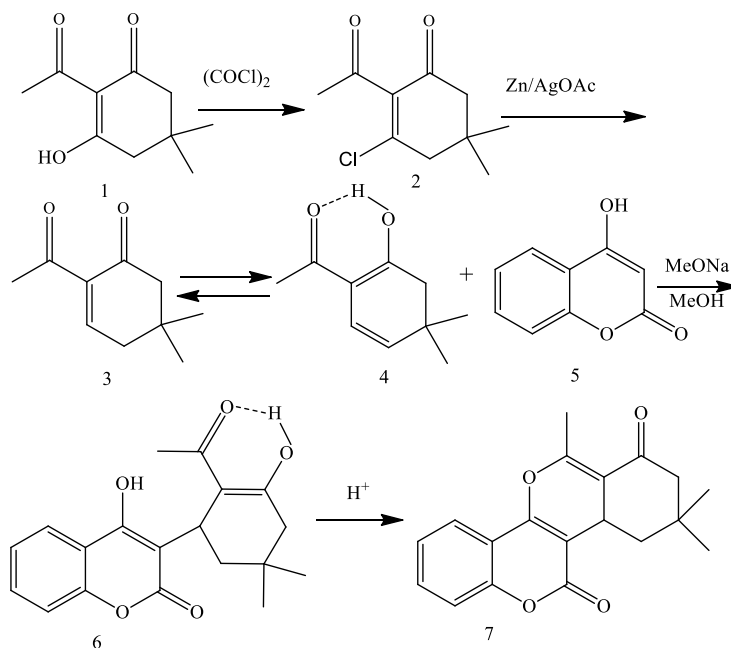


Fig. 1. – Scheme of Synthesis of tetracyclic coumarine derivative (7)

Antioxidant activity of the coumarin derivative (7) was determined by measuring the recovery of the fluorescence intensity of fluorescein, which decreases when exposed to free radicals. Free radicals were generated using the Fenton system [1]. The dependence of the suppression of the action of free radicals and the increase in fluorescence intensity on the logarithm of the concentration of the coumarin derivative to 90 % was determined. For 100 %, the initial fluorescence intensity was taken.  $\text{IC}_{50}$  defined graphically.

## BIBLIOGRAPHY

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