

YUPADEE VANICHAYACHART : EFFECT OF 2-METHOXY-1,4-NAPHTHOQUINONE ON MITOCHONDRIAL RESPIRATION. THESIS ADVISOR : ASSIS. PROF. WITHAYA JANTHASOOT, ASSO. PROF. MONTHOL SANGUANSEMSRI, Ph.D. 100 pp.
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2-methoxy-1,4-naphthoquinone (MNQ), the compound that extract from the leaf of Garden Balsam (*Impatiens balsemina*), was found to stimulate state 4 respiration of isolated rat liver mitochondria. This compound showed difference in mechanism of action from classical uncoupler DNP; First MNQ didn't activate mitochondrial ATPase activity, second MNQ stimulated state 4 respiration in the presence of rotenone, and third, antimycin partially inhibited the MNQ stimulated state 4 respiration. However, both rotenone and antimycin could inhibited the effect of MNQ when used succinate as substrate instead of glutamate plus malate. These indicated that MNQ acted as electron acceptor from NAD^+ -linked substrate before site of action of rotenone and after antimycin. Lawsone and menadione showed insignificant effect in stimulating state 4 respiration. These results were similar when studied in yeast cell (*Saccharomyces cerevisiae*) and isolated yeast mitochondria.