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**EFFECTS OF ACTIVE MOLLUSCICIDAL AGENTS OF COMMON SPICES ON
BIOCHEMICAL PARAMETERS IN THE OVOTESTIS OF *LYMNAEA ACUMINATA***

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ABSTRACT

The effects of active molluscicidal components of *Zingiber officinale* (citral and [6]-gingerol, respectively) and *Trachyspermum ammi*

(thymol) on total protein, free amino acids and nucleic acid levels, and phosphatase activities were studied in the ovotestis of

L. acuminata

. Sublethal exposure to these components caused significant alterations in these biochemical parameters. Maximum reduction in protein levels of ovotestis (35% of control) was observed in snails exposed for 96 hr to 80% of 24 hr LC

50 of [6]-gingerol. Significant reduction in amino acid levels was observed in ovotestis of [6]-gingerol- and thymol-treated snails whereas a significant increase was observed in citral treated snails. Significant reduction in nucleic acid level and acid/alkaline phosphatase activity in ovotestis were observed in all three groups of treated snails. Withdrawal experiments showed that these changes were reversible.

ABSTRAK

Kesan komponen-komponen moluskisid aktif dari *Zingiber officinale* (sitral dan [6]-gingerol, masing-masing) dan *Trachyspermum ammi*

(timol) ke atas protein keseluruhan, aras asid amino bebas dan asid nukleik, serta aktiviti protease telah dikaji dalam ovotestis

L. acuminata

. Pendedahan subletal terhadap bahan-bahan ini menyebabkan pertukaran signifikan ke atas parameter-parameter biokimia tersebut. Pengurangan maksimum aras protein dalam ovotestis (35% dari kawalan) Jicerap dalam haiwan yang terdedah selama 96 jam kepada 80% LC

50 24 jam [6]-gingerol. Pengurangan signifikan aras asid amino dicerap dalam ovotestis haiwan terdedah kepada [6]-gingerol dan timol. Dalam haiwan yang terdedah kepada citral aras asid amino meningkat dengan signifikan. Dalam ketiga-tiga kumpulan haiwan pengurangan signifikan aras asid nukleik dan aktiviti asid/alkalin fosfatase dicerap. Kesan-kesan ini adalah berbalik.

Key words: Citral, [6]-gingerol, molluscicide, spices, thymol

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