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## A Study on the Index Insect as Forensic Entomological Evidence

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This study was carried out to offer the index insects as forensic entomological evidence based on the successional patterns of insect fauna crowded on the pig carcasses. Each of the three pig carcasses immediately after sacrificed was placed at Hwangryung Mt., Busan during early-summer 2006, spring 2007 and mid-summer 2007, respectively. The time required for the decomposition of carcass was varied with season and environmental conditions, from 7 to 113 days. A total of 45 species of 25 families belonging to 6 orders were collected. Insects of Diptera or Coleoptera were dominant in the order of Calliphoridae and Muscidae in the spring, Calliphoridae, Staphylinidae and Muscidae in the early-summer and Staphylinidae, Calliphoridae and Histeridae in the mid-summer. On the other hand, insects of Calliphoridae were dominant during the early-stage of decomposition, suggesting that they must be useful index insects in this stage in the spring and summer at Busan. In the middle and late decomposition stages, however, dominant insects vary with seasons, i.e. Muscidae in the spring, Muscidae and Staphylinidae in the early-summer, Staphylinidae and Histeridae in the mid-summer. This fact indicates that season must be an important factor after the middle decomposition stage to determine the index insect.

**Key words:** Diptera, Coleoptera, forensic entomological evidence, index insect

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## Antioxidative Activity of Extracts of Aged Black Garlic on Oxidation of Human Low Density Lipoprotein

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Evidence in support of the oxidized LDL hypothesis also comes from studies using antioxidants. If oxidized LDL is crucial to atherogenesis, the potential role of antioxidants in the prevention of the oxidative modification of LDL assumes great importance. Therefore, inhibition of LDL oxidation has been suggested as a novel approach to impede atherogenesis. LDL carries several antioxidants, such as  $\alpha$ -tocopherols and carotenoids, which protect them from oxidation. Dietary supplying of vitamin E inhibits LDL oxidation, and prevents oxidized LDL mediated vascular injury. This study was developed to assess the antioxidative activity of aged black garlic extract on lipid peroxidation and low density lipoprotein (LDL). Antioxidative activity of aged black garlic extract on human low density lipoprotein (LDL) was investigated by monitoring a barbituric acid reactive substance (TBARS). Electron donating ability (EDA) of aged black garlic, ethanol extract was higher than that alliin and water extract. Aged black garlic water and ethanol extracts inhibited the copper mediated oxidation of human LDL in a dose dependent manner. Ethanol extract and water extract of aged black garlic almost completely inhibited macrophage derived LDL oxidation in electrophoretic mobility and conjugated diene. These results indicate that extracts of aged black garlic might play a protective antioxidant effects on LDL, probably affecting the structural properties for the LDL oxidation.

**Key words:** Antioxidant, aged black garlic, low density lipoprotein (LDL)