

CHOTE WERAWONG : ROLES OF EPITHELIUM AND TEMPERATURE ON THE ACTIVITY
OF CHICKEN BRONCHIAL SMOOTH MUSCLE. THESIS ADVISOR : ASSO. PROF.
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This thesis was carried out to study the roles of epithelium and temperature on the activity of chicken bronchial smooth muscle. Eighty-one male chickens, aged 6-8 weeks, weighing 600-800 gm were used. Both bronchi were dissected and prepared into zig-zag strips. The isolated tissues were contracted by acetylcholine and histamine at 37 and 45 C. Present and absent epithelial smooth muscle activities were recorded and compared. It was found that, at 45 C the activities of both preparations were declined. At both 37 and 45 C, acetylcholine induced more contraction of present epithelium than absent preparation significantly. Similarly isoprenaline theophylline and KCl induced relaxation of present epithelium much more than absence one. But indomethacin increased contraction of both preparations. The concentration of 10^{-6} to 10^{-4} of histamine induced weak contraction but 10^{-3} M produced initial contraction followed by relaxation (biphasic response). Additionally the 10^{-2} M showed potential moderate relaxation. Further studies to investigate the mechanism of action of histamine indicated that low concentration of histamine which produced small contraction mediated via H_1 receptor. while relaxation mediated via prostaglandin rather than beta receptor. At one dose of 10^{-2} M histamine after indomethacin. histamine decreased initial relaxation followed by contraction (biphasic response). This contraction was not mediated via H_1 receptor and prostaglandin. It may be mediated via other neuropeptides or any mediators such as leukotriene. However more studies are required to illuminate the detail mechanism.