

Micturition activity of pollen extract: contractile effects on bladder and inhibitory effects on urethral smooth muscle of mouse and pig.

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The contractile and inhibitory effects of pollen extracts on bladder and urethral smooth muscle strips from mice and domestic pigs were investigated. In the mice bladder strips, T-60 (a water-soluble extract), GBX (an acetone-soluble extract), and CN (consisting of both T-60 and GBX at a ratio of 20:1) induced contractions at 0.1-3.0 mg/ml in a concentration-dependent manner. CN, T-60, and GBX (3.0 mg/ml) attained 27.6, 27.0, and 7.3% of the ACh response (10.0 microg/ml). The T-60 effect was antagonized noncompetitively by atropine (0.029-0.29 ng/ml). CN, T-60, and GBX inhibited noradrenaline (NA)-contracted urethral strips of mice (IC (50) values for NA 0.3 microg/ml: 0.508, 0.553, and 0.888 mg/ml, and for NA 10.0 microg/ml : 0.556, 0.705, and 0.673 mg/ml). Only GBX relaxed the normal tone of pig urethral strips. The water-soluble extract of corn (ZEA MAYS) pollen, the main pollen of CN, contracted the mice bladder strips and inhibited NA-contracted urethral strips of mice more potently than T-60. The acetonesoluble extract of corn pollen relaxed the normal tone of the pig urethra and inhibited the NA-contracted mouse urethra more effectively than GBX. These results indicate that by pollen extracts (mainly corn pollen extracts) the urine discharge may be caused by the contractile effect on the bladder, and its inhibitory or relaxing effect on the urethra.