

## Short Communication

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# SCREENING OF HETEROCYCLIC COMPOUNDS AS ANTIBACTERIAL AGENTS. I. SOME PYRAZOLE-4-CARBOXALDEHYDE DERIVATIVES

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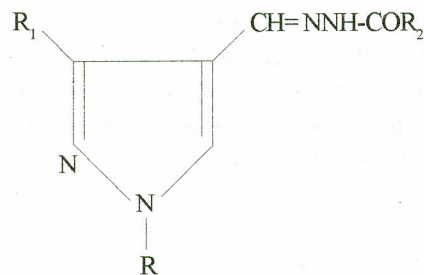
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Various derivatives of heterocyclic compounds are used in chemotherapy (Wilson *et al* 1972). Some of the derivatives of nitrofurantoin and Nitrofurazone are excellent antibacterial agents (Miura and Reckendorf 1967). In the course of our investigations on the synthesis of heterocyclic compounds with potential biological interest, we had earlier obtained some pyrazole-4-carboxaldehydes (Khan and Ribeiro 1987), whose derivatives were prepared for testing as antibacterial agents.

Following were prepared by standard methods. 1-*p*-nitrophenylpyrazole-4-carboxaldehyde *o*-chlorobenzoylhydrazone (I) m.p. 260°; 1-*p*-nitrophenylpyrazole-4-carboxaldehyde *p*-chlorobenzoylhydrazone (II), m.p. 220°; 1,3-diphenylpyrazole-4-carboxaldehyde *o*-chlorobenzoylhydrazone (III), m.p. 210°; 1-*p*-nitrophenylpyrazole-4-carboxaldehyde *p*-nitrobenzoylhydrazone (IV), m.p. 260°; 1,3-diphenylpyrazole-4-carboxaldehyde *m*-nitrobenzoylhydrazone (V), m.p. 180°; 1,3-diphenylpyrazole-4-carboxaldehyde *p*-chlorobenzoylhydrazone (VI), m.p. 220°; 1-*p*-nitrophenylpyrazole-4-carboxaldehyde *m*-nitrobenzoylhydrazone (VII), m.p. 260°; 1-*p*-nitrophenylpyrazole-4-carboxaldehyde oxime (VIII) m.p. 255°; 1,3-diphenylpyrazole-4-carboxaldehyde semicarbazone (IX), m.p. 250°.

These compounds (I-IV) were tested for antibacterial activity *in vitro* using the simple disc diffusion test of sensitivity (Petersdorf and Plorde 1963) against the following organisms; *Staphylococcus aureus* and *Escherichia coli*. Ampicillin disc was used for comparison.



- I R = *p*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>, R<sub>1</sub> = H, R<sub>2</sub> = *o*-Cl C<sub>6</sub>H<sub>4</sub>  
II R = *p*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>, R<sub>1</sub> = H, R<sub>2</sub> = *p*-Cl C<sub>6</sub>H<sub>4</sub>  
III R = R<sub>1</sub> = C<sub>6</sub>H<sub>5</sub>, R<sub>2</sub> = *o*-Cl C<sub>6</sub>H<sub>4</sub>  
IV R = *p*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>, R = H, R<sub>2</sub> = *p*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>  
V R = R<sub>1</sub> = C<sub>6</sub>H<sub>5</sub>, R<sub>2</sub> = *m*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>  
VI R = R<sub>1</sub> = C<sub>6</sub>H<sub>5</sub>, R<sub>2</sub> = *p*-Cl C<sub>6</sub>H<sub>4</sub>  
VII R = *p*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>, R<sub>1</sub> = H, R<sub>2</sub> = *m*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>  
IX R = R<sub>1</sub> = C<sub>6</sub>H<sub>5</sub>, R<sub>2</sub> = NH<sub>2</sub>

Of the compounds tested none was found active against *S. aureus*. However, the semicarbazone (IX) showed some activity while (IV) was considerably active against *E. coli*.

**Key words:** Heterocyclic compounds, Pyrazole-4-Carboxaldehyde.

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