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### THIOUREA DERIVATIVES AS ANTI-TUBERCULAR COMPOUNDS

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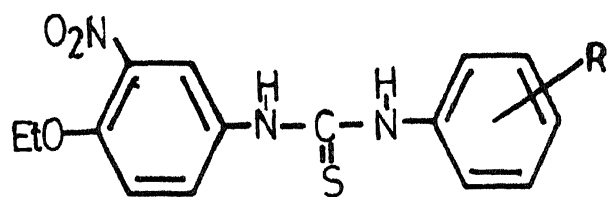
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A NUMBER of thiourea derivatives have been synthesised since many of them have been reported<sup>1-4</sup> to possess anti-tubercular properties. In view of this observation, we report here some new compounds which have shown good anti-tubercular activity in the preliminary screening tests carried out at the Haffkine Institute, Bombay.

The compounds were obtained in 60-65% yields by the general method known in literature<sup>5</sup> involving the condensation of different amino compounds<sup>6-9</sup> with substituted phenyl isothiocyanates in boiling alcohol, acetone or toluene. All the compounds were crystallised from alcohol or D.M.F./methanol and were tested *in vitro* using Youman's liquid medium<sup>10</sup> against H<sub>37</sub>Rv strain of mycobacterium tuberculosis var hominis. By the same method, INH showed activity of 0.04 mcg/ml and streptomycin, 1.0 mcg/ml.

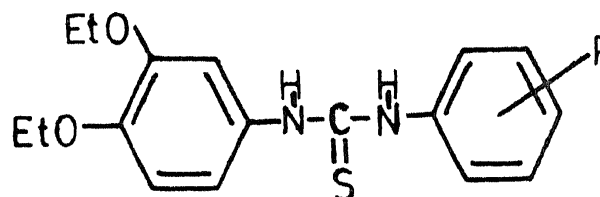
A typical thiourea (XII) showed in IR (KBr) spectrum bands at 3150 (—NH), 1530 (aromatic), 1475 (>C=S) cm<sup>-1</sup>.

TABLE I



Sr. No.	R	m.p. °C	Minimum inhibitory concentration mcg/ml
I	H	180-182	0.5
II	<i>p</i> -Cl	137	0.2
III	<i>o</i> -Cl	187	0.2
IV	<i>m</i> -Cl	179	0.5
V	<i>p</i> -CH <sub>3</sub>	160	0.2
VI	<i>o</i> -CH <sub>3</sub>	155	0.2
VII	<i>m</i> -CH <sub>3</sub>	163	0.2
VIII	<i>o</i> -OCH <sub>3</sub>	178	0.5
IX	<i>p</i> -OCH <sub>3</sub>	143	0.2
X	<i>p</i> -OC <sub>2</sub> H <sub>5</sub>	140	0.1
XI	<i>p-n</i> -OC <sub>3</sub> H <sub>7</sub>	147	0.1
XII	<i>p-n</i> -OC <sub>4</sub> H <sub>9</sub>	156	0.1
XIII	<i>p-n</i> -OC <sub>5</sub> H <sub>11</sub>	157	0.2
XIV	<i>p-iso</i> -OC <sub>5</sub> H <sub>11</sub>	170	0.5

TABLE 2



Sr. No.	R	m.p. °C	Minimum inhibitory concentration mcg/ml
XV	H	150	40
XVI	<i>o</i> -Cl	170	20
XVII	<i>p</i> -Cl	120	20
XVIII	<i>o</i> -CH <sub>3</sub>	172	5
XIX	<i>p</i> -CH <sub>3</sub>	137	40
XX	<i>p</i> -OCH <sub>3</sub>	180	5
XXI	<i>p</i> -OC <sub>2</sub> H <sub>5</sub>	215	0.5
XXII	<i>p-n</i> -OC <sub>3</sub> H <sub>7</sub>	194	0.5
XXIII	<i>p-n</i> -OC <sub>4</sub> H <sub>9</sub>	148	0.5
XXIV	<i>p-n</i> -OC <sub>5</sub> H <sub>11</sub>	143	0.5
XXV	<i>p-iso</i> -OC <sub>5</sub> H <sub>11</sub>	155	10