and the supernatant also assayed for pepsin. Portions of homogenate and of supernatant were also assayed for nitrogen (Kjeldhal). Further groups of rats were similarly treated and the number of animals with gastric lesions and the severity of these graded by an arbitrary scale from 0 to 4+ was recorded.

The pepsin activity of stomach tissue is always lower in the ulcerated animals (Table 1). Oxyphencyclimine and, to a lesser extent, atropine reduced the ulceration index and simultaneously increased the stomach tissue pepsin activity of the animals with reserpine- and phenylbutazone-induced ulcers.

In these groups there was a good relation between the enzyme activity and the severity of gastric lesions although the two parameters were not always proportionally related.

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Protection against phenylisothiocyanate by various steroids, phenobarbitone and diphenylhydantoin

Various arylisothiocyanates, including α-naphthylisothiocyanate and phenylisothiocyanate, cause serious morphologic and functional alterations in the liver (Becker & Plaa, 1965; Plaa, Rogers & Fouts, 1965). The fact that certain isothiocyanates exhibit strong antimicrobial and carcinostatic activities (Horáková, Drobnica & others, 1968a,b) raised interest in this group of compounds. A short time ago, we were able to demonstrate that a series of catatoxic steroids (known to induce hepatic microsomal drug-metabolizing enzyme synthesis), like phenobarbitone (a non-steroidal enzyme inducer), protect the rat against otherwise lethal doses of the α-naphthyl compound (Selye, 1971). Hence, it seemed of interest to establish whether such compounds would also be effective against phenylisothiocyanate.

The techniques were those previously described (Selye, 1971). Female Sprague-Dawley rats, 100 g, were divided into 16 groups and treated as outlined in Table 1. The steroids were administered at 10 mg in 1 ml water (homogenized with a trace of Tween 80), and phenobarbitone sodium and diphenylhydantoin were given at the dose of 6 mg in 1 ml water, by stomach tube, twice daily. L-Thyroxine, as its sodium salt, was injected subcutaneously, once daily, at 200 μg in 0·2 ml water. On the fourth day of this treatment, all animals received 25 mg/100 g of phenylisothiocyanate in 1 ml corn oil orally. The degree of prostration was estimated as previously described (Selye, 1971) and the mortality rate registered on the 9th day after initiation of the experiment. The apparent differences between the control and pretreated groups were computed by the "Exact Probability Test" of Fisher and Yates (Finney, 1948; Siegel, 1956).

Phenylisothiocyanate intoxication is completely prevented by the most active catatoxic steroid known up to date, namely, pregnenolone-16α-carbonitrile (Table 1); however, considerable protection has also been obtained by steroids (previously shown to possess strong catatoxic activity against other substrates) such as 9α-fluoro-

Table 1. *Protection by steroidal and non-steroidal microsomal enzyme inducer against phenylisothiocyanate.*

Treatment[1]	Prostration (Positive/Total)	Mortality (Dead/Total)
None	16/20	14/20
Pregnenolone-16α-carbonitrile	0/15 ***	0/15 ***
9α-Fluoro-11β, 17-dihydroxy-3-oxo-4-androstene-17α propionic acid potassium salt	4/15 ***	4/15 *
Ethylestrenol	1/15 ***	1/15 ***
Spironolactone	3/15 ***	3/15 ***
Norbolethone	2/15 ***	2/15 ***
Oxandrolone	6/15 *	6/15 NS
Prednisolone acetate	15/15 NS	15/15 NS
Triamcinolone	15/15 NS	15/15 NS
Progesterone	9/15 NS	8/15 NS
Oestradiol	15/15 NS	15/15 NS
Desoxycorticosterone acetate	8/15 NS	8/15 NS
Hydroxydione Na-hemisuccinate	11/15 NS	10/15 NS
Thyroxine	14/15 NS	14/15 NS
Phenobarbitone sodium	0/15 ***	0/15 ***
Diphenylhydantoin	1/15 ***	1/15 ***

[1] The rats of all groups were given phenylisothiocyanate (25 mg/100 g in 1 ml oil, orally, on 4th day).

* = $P < 0{\cdot}05$, *** = $P < 0{\cdot}005$, NS = Protection not significant.

11β,17-dihydroxy-3-oxo-4-androstene-17α-propionic acid potassium salt (CS-1†), ethylestrenol, spironolactone and norbolethone. Similar protection was offered by phenobarbitone or diphenylhydantoin. Oxandrolone (a weak catatoxic steroid) offered barely significant protection, whereas the remaining steroids and thyroxine—which in previous work proved to have no significant catatoxic potency against most substrates—also failed to protect against the isocyanate.

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† For Catatoxic Steroid Number 1 (Manufacturer's code number: SC-11927); the first non-hormonal steroid shown to possess catatoxic activity.

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