Substances analogous to hydroxylamine in anti-catalase effect are produced from sulfanilamide when dilute solutions of the drug are exposed to ultraviolet radiation.[2] They should be as easily produced from sulfanilamide by peroxide-producing pneumo- and strepto-cocci, through equivalent processes of oxidative disintegration, producing an amount of anti-catalase, within the multiplying organisms, sufficient to permit accumulation of hydrogen peroxide to levels forcing change in growth rate or growth character.

The retarding effect of sulfanilamide on pneumococcal and streptococcal proliferation is not manifested until after a lag[7] possibly required for the preliminary period of absorption and oxidation, and subsequent hydrogen peroxide accumulation, above postulated. Blockade of the p-amino group, in sulfanilamide, through acetylation, produces a degree of impairment in effectiveness[8] parallel to the degree of impairment in susceptibility to oxidation effected. Oxidation of the p-amino group to a p-hydroxylamino grouping is reported to produce an increase in ability to check streptococcal proliferation *in vitro* not elicited following more drastic oxidation to the p-nitroso or p-nitro grouping.[9]

The effectiveness of sulfanilamide for producing retardation of streptococcal proliferation, *in vitro,* is increased following dilution of the growth medium with saline,[8] to an extent parallelling the diminution in catalase concentration produced. Sulfanilamide has appeared to be appreciably more effective, *in vivo,* in accomplishing sterilization of the catalase-poor spinal fluid than in accomplishing sterilization of the catalase-laden blood.[8]

A more detailed presentation of the above-covered material has been prepared for later publication as a part of a comprehensive report on non-specific factors in resistance which may escape notice of investigators interested more directly in the mechanism of sulfanilamide action.

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THE EFFECT OF AMMONOLYZED FOODS ON THE GROWTH OF ALBINO RATS

IT has been reported recently that calves can gain weight on forms of nitrogen not supposed hitherto to be digestible and assimilable by animals.[1] Much work of this kind extending back to 1919 has been done in the United States and in Germany, and it has been described in a recent review which contains an excellent bibliography.[2]

We have modified and extended such work by using albino rats instead of ruminant animals and by using liquid ammonia in place of nitrogen containing salts, although ammonium hydroxide, ammonium carbonate and ammonium citrate were used in some of the control experiments. A preliminary report concerning some of the work has been published.[3]

It had been shown previously that proteins are ammonolyzed in liquid ammonia, and thereby increase their nitrogen content.[4] Preliminary experiments showed that ammonolyzed casein caused a loss of weight in young rats when it was used to replace other proteins. In order to determine the cause of this toxic effect, a series of experimental feedings was made in which different constituents of the diet were treated with liquid ammonia or ammonium hydroxide or all the constituents of the diet were mixed with ammonium carbonate. It was found that failure to grow occurred in all cases in which the vitamin B complex in the form of dry yeast was allowed to come in contact with ammonia. However, if the yeast was supplied in a separate container, and the remaining food ammonolyzed, the rats not only showed no such interference with growth, but actually grew more rapidly than control animals on normal diets. The control and experimental animals were given their food ad libitum, except for the yeast, and ate equal amounts. The yeast when fed in separate containers was weighed each day, since it is known that vitamin B in excess will accelerate the growth of young rats. Litter mates were used with an equal distribution of males and females. The nitrogen content of the protein was increased by 2.2 per cent. by the treatment with liquid ammonia. In addition it was found that ammonolyzed food has less tendency to spoil or become mouldy than untreated foods.

Just how an albino rat can use such nitrogenous materials as food we are not prepared to say. An explanation in this case might be even more difficult than with ruminant animals, since in their case some intermediate action of bacteria is sometimes assumed.

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