Substance	Lysozyme		Hyaluronidase	
	Inhibition (per cent)	Activation (per cent)	Inhibition (per cent)	Activation (per cent)
Heparin				
$1{\cdot}4 \times 10^{-1}$	100·0	—	100·0	—
$5{\cdot}0 \times 10^{-4}$	80·0	—	65·0	—
$1{\cdot}0 \times 10^{-4}$	45·3	—	37·5	—
$5{\cdot}0 \times 10^{-5}$	19·1	—	6·1	—
Histone				
$1{\cdot}0 \times 10^{-2}$	—	22·2	—	42·0
$7{\cdot}0 \times 10^{-3}$	—	0	—	32·1
$1{\cdot}0 \times 10^{-3}$	—	0	—	4·0

Enzyme activity was studied by the viscosimetric method described by Meyer and Hahnel[3] (see graph). Heparin inhibits lysozyme activity up to a concentration of about 5×10^{-5}. Histone, protamine and peptone are active as activators up to a concentration of about 1×10^{-2}; smaller concentrations are without influence.

When inhibition and activation are calculated by the formulæ developed earlier by us[1], a quantitative estimate is possible (see table; for comparison the respective values for hyaluronidase are also given).

It can be seen from the table that the inhibiting action of heparin on lysozyme and hyaluronidase is of the same order, though the action of lysozyme is inhibited somewhat more. The activating effect of histone and protamine on lysozyme is less pronounced. Concentrations of $1{\cdot}0 \times 10^{-3}$ and $7{\cdot}0 \times 10^{-3}$ show 4 and 32 per cent activation of action of hyaluronidase. These concentrations are without influence on the activity of lysozyme. A concentration of $1{\cdot}0 \times 10^{-2}$ histone is required to show activation of lysozyme.

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Influence of Sulphaguanidine on the Intestinal Flora and Thiamine Synthesis brought about by Curd Feeding

Sulpha drugs bring about a marked change in the composition of fæcal flora[1]. A reduction in the number of *B. coli*, and also in their efficiency for synthesizing thiamine, have been observed by many workers[2]. We have shown that curd feeding enhanced the coliform organisms in the intestines and also the synthesis of thiamine[3]. It was therefore of interest to study the effects of sulpha drugs when administered along with curds.

Eighteen albino rats, consisting of equal numbers of males and females and weighing 80–100 gm., were fed a vitamin B_1-free basal diet for one week, after which period the urine and fæces of the individual rats were collected with the usual precautions and thiamine was determined[4]. The rats were then given sulphaguanidine (0·25 gm. per rat daily) along with the thiamine-free basal diet. A week later, urine and fæces were collected for three days to assess the lowering in thiamine synthesis due to sulphaguanidine feeding.

After a week's rest to overcome the effects of the sulpha drug, the rats were divided into two comparable groups; one group was given 10 γ of synthetic vitamin B_1 and the other 13 gm. of curd containing 5 γ vitamin B_1 plus 5 γ synthetic vitamin B_1. Three rats in each group were employed for determining the *B. coli* content of the fæces, and the other six rats were used for thiamine-excretion studies. When the rats had been on the diet for a week, urinary and fæcal collections were made. Both groups then received sulphaguanidine (0·25 gm. per rat daily), and a week later urine and fæces were collected. The *B. coli* in the fæces were also enumerated. The average values of thiamine excreted in the different cases stated above and the *B. coli* count are presented in the accompanying table.

Period of the diet	Total daily thiamine excretion (γ) in Urine	Fæces	*B. coli* count
Basal B_1-free diet	1·14	1·08	—
Basal B_1-free diet + 0·25 gm. sulphaguanidine	0·42	0·06	—
Basal diet + 10 γ synthetic B_1	1·97	1·48	$2{\cdot}8 \times 10^6$
Basal diet + 13 gm. curd + 5 γ synthetic B_1	3·18	3·62	$9{\cdot}6 \times 10^5$
Basal diet + 10 γ synthetic B_1 + 0·25 gm. sulphaguanidine	1·33	0·24	$1{\cdot}5 \times 10^3$
Basal diet + 13 gm. curd + 5 γ synthetic B_1 + 0·25 gm. sulphaguanidine	2·67	2·76	$6{\cdot}0 \times 10^5$

The results clearly show that with 13 gm. of curds, accounting for only 5 γ of vitamin B_1, the urinary and fæcal excretion of thiamine is considerably more than in the corresponding animals receiving 10 γ of synthetic vitamin. This is in conformity with our earlier findings. The reduction in thiamine excretion when sulphaguanidine is fed is much higher in the synthetic thiamine group than in the curd group. The coliform organisms in the curd group have not suffered so great a decrease as the other group, indicating that curd-feeding results in developing sulpha drug antagonism similar to that when *p*-aminobenzoic acid is administered. These observations have a fundamental and practical importance in nutrition, more especially in the case of persons who generally take curds or buttermilk with every meal.

Further work is being carried out. We desire to record our thanks to Dr. K. V. Giri for his interest in this investigation.

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