

shoots up to 650 per cent below that of the plants treated with colchicine alone. Table 2 also shows that the inhibition of the various growth-processes of the plants, as expressed by their growth coefficient, was less marked than the antiproliferative effects of the venom. This indicates a differential sensitivity of the normal and pathological tissues to the drug, as postulated for all agents presumed to be carcinolytic.

Preliminary trials (unpublished) in search of the active principle of the venom have resulted only in the finding that among its alleged constituents tryptophane and choline were practically inactive in reducing colchicine-induced tumours, while palmitic acid had marked therapeutic effects on the induced phytocarcinoma of the tomato. Experiments are being carried out to test the effects of bee venom on these last as well as on their causative agent, *Phytomonas tumefaciens*.

While concluding the present experiments, my attention was directed to a note¹⁶ reporting the reduction of tumour incidence in mice, obtained by Robinson by feeding the animals with pollen stored by the bees in the hive. Fresh pollen had apparently no such effects.

Further research is necessary to identify the various factors in each of these converging actions, and to determine whether the active principle of the substance, or substances, responsible for the inactivation of the pollen, the reduction of colchicine-induced tumours and the carcinolytic effects in mice is identical in each case.

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Methionine Content of Cereals and Legumes

THE methionine content of cereals and legumes widely used in India has been measured. Determinations were made with a Lumetron photo-electric colorimeter using the sodium nitroprusside method of McCarthy and Sullivan¹ as modified by Csonka and Denton², and further modified by us³. The values shown in the accompanying table give the mean of at least two determinations. It is seen

Name	Methionine contents (% in sample)
Rice (<i>Oryza sativa</i>)	0.21
Wheat (<i>Triticum vulgare</i>)	0.08
Maize (<i>Zea mays</i>)	0.08
Green gram (<i>Phaseolus radiatus</i> Linn.)	0.26
Bengal gram (<i>Cicer arietinum</i>)	0.24
Lentil (<i>Lens esculenta</i>)	0.07
Vetch pea (<i>Lathyrus sativus</i>)	0.06
Red gram (<i>Cajanus indicus</i>)	0.15

that the vetch pea is very poor in methionine content. The relationship between this very low methionine content of the vetch pea and lathyrism has been discussed elsewhere. There is evidence to support our view that lathyrism is due to absolute methionine deficiency, aided by some toxic substance which further brings about a disturbance in methionine metabolism. It is also apparent that the low nutritive value of lentil protein is due not to cystine deficiency but to methionine deficiency. The better quality of rice protein is due, at least in part, to the much higher methionine content of the former. Further investigation is in progress.

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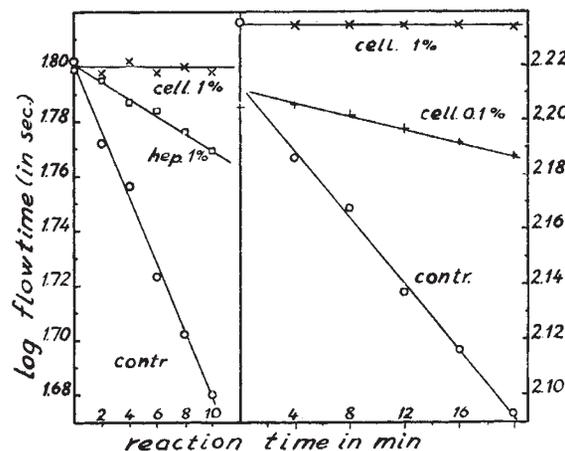
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Polysaccharide Polysulphuric Acids as Antihyaluronidases

DURING an investigation of the antiproteolytic properties of polysaccharide polysulphuric acids, including heparin, the action of these substances was tested on hyaluronidase, as representing a depolymerizing enzyme differing from the proteolytic enzymes. The viscosity determinations were carried out as described by Lundquist¹. They were recorded with the logarithm of the time of flow (in sec.) as the ordinate. The heparin was a commercial product (Løvens Kemiske Fabrik, Copenhagen) and the polysulphuric acids were prepared as previously described².

The test solutions had the following composition: potassium or sodium hyaluronate in buffer, 3 ml.; hyaluronidase solution, 0.5 ml.; inhibitor solution, 0.1 ml. The accompanying graph gives typical results.

Chondroitin sulphuric acid and heparin have been found to inhibit hyaluronidase^{3,4}. According to our results, the inhibitory action of heparin is low as



Inhibitory action of heparin (1 per cent solution) and cellulose-trisulphuric acid (1 and 0.1 per cent solutions as sodium salts) on the depolymerization of two different samples of hyaluronic acid by hyaluronidase from bull sperm and bull testis respectively