indicated a slow depolymerization of either HA or an incomplete dissociation of the added substances or both. However, in the case of dilution of VHH with water, some sort of equilibrium between the depolymerized and polymerized forms which depended upon the concentration of water, seemed to exist.

The activation energy of viscosity versus concentration plots showed a decrease in its values with dilution of VHH-water system or were accompanied by the presence of 'maximum' in those of VHH-ascorbic acid, VHH-lactic acid and VHH-pyruvic acid systems. The decrease in the activation energy may be attributed to depolymerization, while the increase, to the molecular re-arrangements/associations or polymerization. The trend in the behaviour of the computed thermodynamic parameters lend further support to the said contention.

Addition of reducing agents invariably caused increase in GA content in VHH which suggested depolymerization of HA.

No effect of these acids was observed on the N-AG content of VHH which indicated that the hyaluronidase activity, if any, was not affected due to the addition of the reducing agents in question. This has, therefore, suggested that the depolymerization of HA of VHH, when treated with the reducing agents, was not due to the hyaluronidase activity and was, therefore, purely non-enzymatic.
The higher concentrations of reducing acids caused precipitation of the mixture (VHH- ascorbic acid; VHH- lactic acid; VHH- pyruvic acid). Protein content in the precipitate, thus obtained, increased on increasing the concentration of the reducing agents without affecting the total protein content of the system. This might be due to the dissociation of non-covalently bonded proteins as a consequence of the depolymerization of HA.

VHH, when subjected to SDS-PAGE, showed 15 normal bands. After incubation with the ascorbic, lactic and pyruvic acids some prominent changes in the peptide bands on electrophoreograms of each system were observed. Ascorbic acid at higher concentrations caused disappearance of band XIII while in the presence of lactic acid a new and prominent band at twelfth position was observed. On the other hand in the presence of pyruvic acid, in the first four initial concentrations, bifurcation of the IX band was recorded. The latter, at 1.92 mM/l of the acid concentration, again appeared as a single band. The disappearance of the bands at different concentrations of acids may possibly be due to proteolysis, since the pH of the incubation mixture was quite favourable for the activity of proteases and the emergence of new bands could be due to aggregation of some low molecular weight proteins. The bifurcation of band IX in response to the treatment of pyruvic acid might be a result of degradation of this protein.
The effect of different concentrations of ascorbic acid, lactic acid, pyruvic acid and that of water dilutions has been studied on the density, the viscosity, the specific conductance, as well as on the calculated values of activation energy and the thermodynamic parameters of vitreous humour homogenate (VHH) at several temperatures. Their effects on the concentrations of N-acetyl-D-glucosamine (N-AG), glucuronic acid (GA) and the total soluble proteins as well as their electrophoretic pattern under sodium dodecyl sulphate-polyacrylamide gel electrophoresis (SDS-PAGE) have also been investigated.

The densities in each of the three systems, viz., the VHH-ascorbic acid, VHH-lactic acid and VHH-pyruvic acid were found to decrease with increase in the concentrations of the reducing agents.

The viscosity values of VHH showed the usual trend of either slow or fast decrease on dilution or in the presence of the reducing agents. These variations seem to have been caused by the difference in intermolecular interactions leading eventually to depolymerization.

The data of specific conductance showed that the low concentrations of these acids were ineffective in producing ionic species in the solution whereas on increasing the concentrations a gradual increase in the specific conductance was observed. This