homogenate was prepared and incubated at pH 8.0 and 37°C with GSH and 1-menaphthyl sulphate. Only when the liver preparation was included in the incubation mixture was it possible to demonstrate chromatographically the formation of significant amounts of *S*-(1-menaphthyl)glutathione.

A spectrophotometric assay of the interaction of 1-menaphthyl sulphate and GSH was developed after it had been observed that ϵ for the ester was 1400 at 298nm whereas for *S*-(1-menaphthyl)glutathione it was 3900 at this wavelength. The enzyme responsible for catalysing the reaction of the ester with GSH was purified 15-fold in a manner similar to that described by Johnson (1966) for glutathione *S*-alkyltransferase. The present enzyme, however, differed from that described by Johnson (1966) in that it showed much greater stability to dialysis against water.

In the presence of the purified enzyme 1-menaphthyl alcohol served neither as a substrate for the aralkylation of GSH nor as an inhibitor of the reaction between 1-menaphthyl sulphate and GSH. When sodium 1-menaphthyl sulphate and GSH were incubated at 37°C and pH 8.0 in the presence of the purified enzyme the amount of *S*-(1-menaphthyl)glutathione formed corresponded to the amount of SO_4^{2-} released, whereas no significant liberation of SO_4^{2-} occurred when GSH was omitted from the incubation mixture. In view of these various observations it appears that it is the ester and not the alcohol that acts as the substrate for this enzyme.

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Acid Glycosaminoglycans of Elastic Cartilage

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The acid glycosaminoglycan composition of ligamentum nuchae, a connective tissue composed almost entirely of elastic fibres, differs from that of tendon, where the fibres are exclusively collagenous (Meyer, Davidson, Linker & Hoffman, 1956). In this communication two approaches are described by which it was hoped to establish whether the presence of elastic fibres in cartilage is associated with differences in acid glycosaminoglycan composition or in the pattern of their age-related changes already established for hyaline cartilages (Mathews, 1965).

Six cartilages, two elastic (external ear and

epiglottis) and four hyaline (nasal septum, trachea, thyroid and cricoid), from a 2-year-old steer and the external ear of New Zealand White rabbits (of ages ranging up to 2 years) were dissected free of surrounding tissue. Dry cartilage was subjected to proteolytic digestion (Scott, 1960) and, after preliminary purification (Wusteman, Johnson, Dodgson & Bell, 1968), the glycosaminoglycan mixture was fractionated on Dowex 1 (X2; 200–400 mesh; Cl^- form) with a stepwise gradient of 0.8M-, 1.7M- and 5.0M-NaCl. Collagen and elastin content of the dried cartilage was deduced from the hydroxyproline content (Stegemann, 1958) before and after alkaline extraction (Lansing, Rosenthal, Alex & Dempsey, 1952).

Though the elastic cartilages contain less acid glycosaminoglycan per unit dry weight than the hyaline cartilages, no significant differences between the two types of cartilage were seen when results were expressed relative to the collagen content. Like the hyaline cartilages, elastic cartilage contains small quantities of keratan sulphate, whereas the bulk (over 90%) of the acid glycosaminoglycans are chondroitin 4-sulphate and chondroitin 6-sulphate. Neither the ratio of chondroitin 4-sulphate to chondroitin 6-sulphate nor the degree of sulphation of the polysaccharides could be correlated with the presence or absence of elastic fibres. The only respect in which elastic and non-elastic cartilages differed slightly lay in the unsulphated glycosaminoglycan fraction eluted by 0.8M-NaCl. This accounted for 3.2 and 4.3% of the total uronic acid of ear and epiglottis cartilage respectively, but was less than 2.4% in the hyaline cartilages.

Changes noted during the aging of rabbit ear cartilage were similar to those already reported for the hyaline cartilage of human bronchus (Mason, Dodgson & Wusteman, 1969).

The implication of these results will be discussed.

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