from a ^{60}Co source at a rate of 8 krad/min, and the actual dose determined by Fricke dosimetry and corrected for respective electron densities in each case. Changes in the concentrations of the reductant $S_2O_3^{2-}$, As(III) and Sb(III) were determined iodometrically and the corresponding G values calculated, for different proportions of initial concentrations of the reductants (0·5 to 50 mM) and the oxidants (1 to 100 mM).

While the radiolysis of a pure thiosulphate solution yields S and H_2S, the same is completely oxidized to $S_4O_6^{2-}$ and SO_4^{2-} in the presence of an oxidant, the G ($-S_2O_3^{2-}$) value being distinctly higher in the presence of a halate ion (3–9) than in the presence of the nitrite ion (0·75 to 1·10).

The G[-As (III)] in the presence of IO_3^- is 3·4 which is much higher than in the case of radiolysis of a pure arsenite solution (2–4).

Similarly in the radiolysis [Sb(III), the G-Sb(III)] is much higher in the presence of an oxidant BrO_3^- or IO_3^-, compared to a pure solution of Sb(III). One noticeable difference between the BrO_3^- and IO_3^- oxidants, is that the G[-Sb (III)] is independent of the BrO_3^- ion concentration whereas it is practically directly proportional to the IO_3^- ion concentration over the same range (0·1 to 0·01 M).

The G values observed in all the cases can be explained on the basis of the participation of the primary radiolysis products of water, *viz.*, e_{aq}, H, OH and H_2O_2.

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SOLUBILIZATION OF ELASTOIDIN BY ALKALI TREATMENT

Elastoidin found in shark fins is an unusual type of intracellular structural protein belonging to the collagen family[1–3]. The major structural component of elastoidin is considered to be a typical collagen associated with non-collagenous protein rich in tyrosine[4]. They are assumed to be tightly bound and considered to be inseparable except by severe treatment[4,5]. The inherent insolubility of elastoidin fibres renders chemical investigation of its constitution extremely difficult. We now report the solubilization of elastoidin fibres by the action of alkali in saturated salt solution, a treatment known to disrupt intramolecular crosslinkages[6]. Kuhn *et al.*[6] had reported that action of alkali on collagen brings about the splitting of β-components into α-chains by the scission of intramolecular linkages. It is therefore expected that the collagenous and non-collagenous components in elastoidin fibres can be separated by this treatment.

Ealstoidin fibres were exposed to the action of alkali as per the method of Kuhn[6]. The fibres were suspended in 5% sodium hydroxide saturated with sodium sulphate, at 4° C for 15 days. The viscous solution obtained was dialysed against 0·3% acetic acid with several changes and the dialysant was analysed. The analysis of the dialysant showed an increase in the content of hydroxyproline and glycine. Cysteine was absent and tyrosine content is very much reduced (Table I).

Table I

Amino acids content of the elastoidin fibre, solubilized elastoidin and shark skin collagen

Sample	Hydroxyproline	Glycine	Tyrosine	Cysteine
	amino acid residues/1000 residues			
1. Elastoidin fibre	55	281	49	2
2. Solubilized elastoidin	58	306	18	0
3. Shark skin collagen*	60	338	3·3	0

*ref. 9.

The results (Table I) show progressive enrichment of collagenous portion in the dialysant. This is corroborated by the determination of the specific rotation of the dialysant which was found to be $(\alpha)_{405} = -978$, the corresponding value for the native collagen is $(\alpha)_{405} = -1020$ and for the denatured collagen $(\alpha)_{405} = -300$[6]. Similarly the denaturation temperature is found to be 31·2° C as compared with the value 29° C for shark skin collagen[7]. The absence of cysteine as well as increase in denaturation temperature may be ascribed either to the loss of cysteine containing peptides during dialysis or to the conversion of these residues to lysinoalanine by β-elimination induced by alkali[8]. The nature of this collagenous component derived from elastoidin is under investigation.

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POLYPHENOLIC COMPONENTS OF *POLYGONUM CHINENSE* LEAVES

THE genus *Polygonum* (Polygonaceae) comprises more than twenty species. Though there were reports[1] about the medicinal uses of *P. chinense*, no chemical examination of this plant has been reported so far. We present here the results of our chemical investigation of leaves of this plant collected in East Godavari district.

Powdered dried leaves were successively extracted with petroleum ether, ether and ethanol. The petroleum ether extract residue on chromatography yielded only β-sitosterol.

The ether extract on concentration deposited a mixture of flavonoids which was separated on a column of silica gel into kaempferol and quercetin. Their identities were established by direct comparison with authentic specimens (m.m.p., R_f and co-PC).

The ethanolic extract was concentrated to an aq. phase and then successively extracted with ether and ethyl acetate. The ethyl acetate extract on concentration deposited a crystalline compound which was identified as ellagic acid, m.p. $> 360°$, $C_{14}H_6O_8$ positive Griessmayer's reaction[2], λ_{max} 250, 362 nm, R_f 0·32 in PC (Forestal)[3], tetramethyl ether m.p. 337–38°. The identity was confirmed by direct comparison with synthetic ellagic acid.

The mother liquors of ellagic acid on chromatography over silica gel yielded gallic acid. This was followed by a compound, m.p. $> 360°$, which gave positive Griessmayer's reaction[2] and had R_f 0·62 (Forestal)[3]. It analysed for $C_{15}H_8O_8$ with one methoxyl and formed tetramethyl ellagic acid on methylation. It had λ_{max} 250, 290 (sh), 365 nm and the addition of sodium acetate caused the splitting of the 250 band to 250 and 264 nm. These properties suggest the identity of the compound as 3-O-methyl ellagic acid[4].

A flavonoid glycoside mixture obtained in the above chromatogram was rechromatographed on silica gel when two glycosides A and B were obtained. Glycoside A, m.p. 228–30°, λ_{max} 267, 367 nm, $C_{21}H_{20}O_{11}$ on hydrolysis yielded kaempferol and glucose. A study of its U.V. spectrum with the addition of $AlCl_3$ and NaOAc suggested that it could be kaempferol-7-O-glucoside[5]. This was confirmed by methylation of the glycoside with diazomethane followed by acid hydrolysis when, besides glucose, 3, 5, 4′-tri-O-methyl kaempferol was obtained and identified by direct comparison with an authentic sample[6].

Glycoside B, m.p. 188–91°, λ_{max} 267, 354 nm, $C_{21}H_{18}O_{12}$ yielded kaempferol and glucuronic acid on acid hydrolysis. Its colour reactions and spectral properties suggested that it could be kaempferol-3-O-glucuronide[7]. This was confirmed by direct chromatographic comparison, kindly carried out by Dr. K. R. Markham, with an authentic sample in H_2O, 15% HOAc and TBA (on cellulose). Its appearance on paper was also identical in U.V. (366 mm), and U.V./NH_3.

To our knowledge this is the first report of the occurrence of 3-O-methyl ellagic acid and kaempferol-3-O-glucuronide in *Polygonum* species and this is the second report of the occurrence of ellagic acid in *Polygonum* species, the first being in *P. bistorta*[8].

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