At the purification of the crude reaction mixture components according to (2) are removed. All essential features of the reaction seem to be satisfactorily explained by the two cases in combination, *e. g.*

a. The formation of sulphide ions during the reaction.

b. The decreased rate of gelation when trithiocarbonate ions are removed by ion exchanger.

c. The regular formation of trithiocarbonate ions in viscose is suppressed by polyethylenimine.

d. The presence of sulphur and nitrogen in the purified polymer.

The analytical data permit an estimation of an average structural unit of the infinite network. This building unit may be preferably expressed by telling the numbers of anhydroglucose units and ethylenimine units statistically shared to a single interlinking unit:

$$\frac{b \text{ units of ethylenimine} \mid \text{interlinking unit } (> C{=}S)}{a \text{ anhydroglucose units}}$$

Weight of building unit $= 162a-1+44+43b-1 = 162a+43b+42 = M_w$

Two equations are obtained from analytical data:

$14b/M_w = 13.6/100$, $32/M_w = 2.1/100$

with approximative solution (whole numbers) $a = 5$, $b = 15$, $M_w = 1\,500$.

$\%\,N_{calc} = 14.0$, $\%\,S_{calc} = 2.1$

The calculated building unit M_w contains 14 centres where anion exchange is possible. The maximum exchange capacity would thus be $14\,000/1\,500 = 9.3$ mequiv./g dry polymer, which should be compared with 4.4 mequiv./g, found in the actual case. Such a relation seems in no way unreasonable.

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The Ultraviolet Spectrum of Vitamin A_2

GEORG LAMBERTSEN and OLAF R. BRÆKKAN

Governmental Vitamin Laboratory, Norwegian Fisheries Research Institute, Bergen, Norway

The spetroscopic properties of vitamin A_2 have been investigated by several workers [1-3]. The most complete data up till now have been given by Cama and Morton [3] who made vitamin A_2 by reducing retinene$_2$ with lithium aluminium hydride. We have previously reported a method for the determination of vitamin A_2 based on a calculation of the data obtained from the ultraviolet absorption curve after careful chromatography of the unsaponifiable matter [4]. The method was extensively compared with the hitherto used method for the determination of vitamin A_2 based

Table 1. Relative extinction values for vitamin A_2-alcohol in abs. ethanol.

Wavelength	E/E_{max}	Wavelength	E/E_{max}
230	0.206	304	0.376
235	0.195	305	0.390
240	0.167	310	0.475
245	0.150	315	0.552
250	0.160	320	0.640
255	0.189	325	0.730
260	0.210	330	0.820
265	0.250	335	0.890
270	0.303	340	0.940
272	0.351	345	0.979
274	0.395	348	0.993
275	0.407	350	0.996
276	0.416	351	1.000
277	0.416	352	0.999
278	0.409	354	0.995
280	0.400	355	0.992
282	0.426	356	0.984
284	0.473	360	0.958
285	0.495	365	0.908
286	0.510	370	0.855
288	0.498	375	0.761
290	0.441	380	0.637
292	0.374	385	0.523
294	0.338	390	0.449
295	0.324	395	0.362
296	0.320	400	0.249
298	0.324	410	0.078
300	0.388	420	0.025
302	0.355		

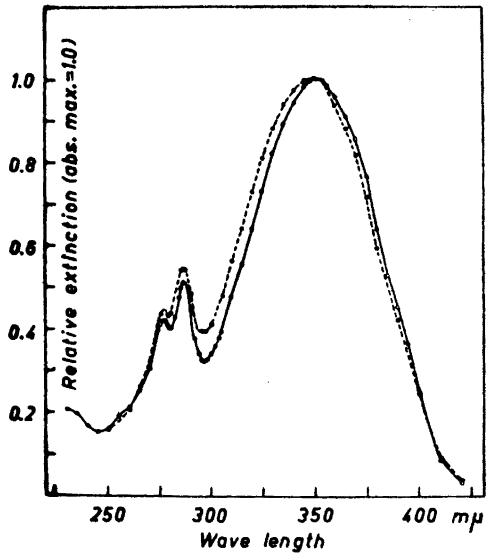

Fig. 1. Relative extinction values for vitamin A_2.
● from retinine$_2$ (Cama and Morton [3]).
○ from perch liver (present investigation).

on the ratio of the E-values at 693 mμ and 620 mμ of the antimony trichloride reaction, and a good agreement was found. The formula for the calculation of vitamin A_2 in our method has been derived from the absorption data reported for all-*trans* vitamin A_1 by Cama, Collins and Morton [5] and for vitamin A_2 by Cama and Morton [3].

In the spectrophotometric methods used at present for the determination of vitamin A, the exact absorption data of the pure substance are indispensible for the correct calculation of the results. This also applies to the proposed [4] joint ultra-violet-spectrophotometric determination of vitamin A_1 and A_2. From the investigation of Abdullah *et al.*[6] and recently Barnholdt and Hjarde [7], the expected existence of isomeric forms of vitamin A_2 has been demonstrated. During our extensive study of vitamin A components in fish liver and liver oils, we have found reason to conclude that the vitamins A are stored *in vivo* as the all-*trans* isomers. During our routine investigations of fish livers, samples of perch liver were found to be devoid of vitamin A_1 and *cis* isomers (maleic anhydride reaction). This made it of interest to examine more carefully and in detail the U.V.-absorption curve. The measurements were carried out with a Beckman Spectrophotometer Model DU. The results are reported in Table 1, and compared with the values of Cama and Morton [3] in Fig. 1. As may be noted, the absorption maximum in ethanol of vitamin A_2-alcohol was found at 351 mμ, with a second peak at 286 mμ, in agreement with the previous findings. The ratio $E_{286} / E_{351} = 0.320$ is lower, however, than the value 0.393 reported by Cama and Morton [3], indicating a higher degree of purity. It may further be noted that a small but distinct peak was observed at 277 mμ ($E_{277} / E_{351} = 0.417$). Actually, this peak was indicated already when the observations of Cama and Morton [3] were plotted graphically.

The results presented make a revised value of the absorption maximum of a purified (crystalline) all-*trans* vitamin A_2 of importance for further studies of this vitamin.

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Corrections to "Tritium Labelling of *p*-Aminosalicylic Acid (PAS)"

ÅKE HANNGREN and JAN RYDBERG

Söderby Hospital, Uttran, and Pharm.Dept., Kgl. Veterinärhögskolan, Stockholm; Chem. Dept., Univ. of Stockholm, Stockholm, Sweden

In our paper [1] the equation shall read:

$$q = \frac{k_d}{1 + k_a [H^+]^{-1}}$$

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