



2-hydroxypyridine - 297; and for 4-hydroxypyridine - 246 nm [4]). ^1H NMR (CDCl_3): 7.45 (1H, dd, $J = 5$ and 9 Hz), 7.56 (1H, d, $J = 9$ Hz), 8.10 (1H, d, $J = 5$ Hz), 8.6 (1H, br. s).

The position of the carboxy group was established from an analysis of the ^1H NMR spectra of compounds (I) and (II). In actual fact, the value of the meta spin-spin coupling constant of the protons of the pyridine nucleus in substance (II), which was 2.5 Hz, excluded structure (IV) for the compound isolated. In the hydroxy acid (IV) this constant has a value of 0.4 Hz [5].

From the results that we had obtained and those of a quantitative determination of Na^+ ions on a Shimadzu AA 610S atomic absorption spectrometer (found: Na 14.2%, calculated for $\text{C}_6\text{H}_4\text{NO}_3\text{Na}$: Na 14.0%) it followed that the compound isolated was the Na salt of 5-hydroxypicolinic acid (I). Substance (I) has been synthesized previously by the reduction of 4-chloro-5-hydroxypicolinic acid [6].

So far as we are aware, a hydroxypicolinic acid has not previously been described in the culture medium of a microorganism. Similar compounds such as the phytopathotoxin fusaric acid have been isolated previously from various representatives of *Fusarium* [7].

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AMINO ACID COMPOSITION OF *Pirus communis* AND ITS CHANGE DURING STORAGE

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Pears are distinguished by a variety of free amino acids. Of the 20 commonest amino acids we have identified 16 in pears, seven of them being essential (Table 1).

Two varieties of pears with different times of ripening were investigated. The dynamics of the changes in the amino acids during storage were established by determining these constituents extracted from weighed specimens of average samples of the skin and flesh with 85% ethanol (allowing for the moisture content of the tissues investigated) before and after storage for 50 days. For the best extraction of the amino acids, the homogeneous mass

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TABLE 1. Free Amino Acids of *Pirus communis* (proportion by mass, $\times 10^{-3}\%$ of the dry mass)

Amino acid	Variety					
	William (summer)			Beurre Ardanpon		
	Fresh fruit				after storage for 50 days	
	peel	flesh	peel	flesh	peel	flesh
Alanine	1,200	0,550	1,065	0,405	0,548	0,384
Valine	0,820	0,610	0,55	0,335	0,38	0,30
Glycine	0,255	0,275	0,465	0,155	0,102	0,148
Leucine	0,645	0,365	0,525	0,145	0,200	0,212
Isoleucine	0,490	0,350	0,415	0,250	0,288	0,268
Total monoamino mono-carboxylic acids	3,410	2,130	3,075	1,370	1,608	1,312
Glutamic acid	1,06	0,460	3,66	2,290	1,66	0,84
Aspartic acid	0,355	0,995	2,05	1,965	2,04	0,748
Total monoamino dicarboxylic acids	1,405	1,455	5,570	4,255	3,700	1,596
Arginine	0,100	0,080	0,200	0,040	0,000	0,048
Histidine	0,080	0,100	0,160	0,045	0,08	0,044
Lysine	0,295	0,195	0,210	0,040	0,000	0,000
Total diamino mono-carboxylic acids	0,475	0,375	0,570	0,045	0,048	0,092
Methionine	0,380	0,360	0,70	0,855	0,748	0,66
Proline	3,475	0,310	0,520	0,000	1,188	0,596
Serine	1,020	3,640	1,390	0,765	3,806	1,188
Threonine	1,315		0,500	0,315		
Tyrosine	0,300	0,190	0,255	0,175	0,164	0,128
Phenylalanine	0,400	0,275	0,425	0,175	0,18	0,200
Total essential amino acids	4,345	4,212	3,330	2,075	4,017	2,353
Total amino acids	12,180	11,835	12,955	7,885	11,532	5,808
Ammonia	1,965	4,405	3,560	1,395	2,052	1,272

was heated to the boiling point of the ethanol. Immediately before determination the experimental samples were filtered, the ethanolic extracts were evaporated in vacuum to dryness, and the residue was then dissolved in solution C(HCl) 0.1 mole/dm³ [sic] and an aliquot part was injected into a KLA-3 amino acid analyzer (Hitachi) by the method developed by Moore and Stein [1].

It was established that pears contain no cystine while lysine was detected in the tissues of a summer variety and in the skin of freshly gathered pears of the Beurre Ardanpon.

The flesh of the winter variety differed from that of the summer variety with respect to the amount and quality of the amino acids. After storage for 50 days with a qualitative increase in the amino acids a quantitative decrease was observed in connection with the fact that they are active metabolites.

With respect to total amino acids, the peel of the winter variety was richer than the summer variety while the flesh showed the opposite tendency.

With respect to the set of amino acids the winter variety was poorer than the summer. The stored tissues lacked proline, arginine, and glycine. In the course of storage, in the covering tissues while arginine and glycine were absent proline appeared, and in the flesh arginine was also detected.

The ripening of the summer variety took place with an increase in the water deficiency, which led to an accumulation of such amino acids as leucine, proline, valine, glutamic acid, and alanine.

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