Powder photographs of the chlorine-free nitrides $UN_{1.73\ 1.75}$ reveal only lines due to a face-centered cubic lattice such as occurs in UN_2 (CaF_2-type structure) [2]. The lattice constants correspond to those of nitrides of the same composition obtained by the reaction either of finely divided uranium (prepared from UH_3) with nitrogen at 350 °C or of UH_3 with ammonia at 250 °C. Measurements with a diffractometer gave a lattice constant of $a = 5.287 \pm 0.002$ Å. The weak lines reported for nitrides of composition up to $UN_{1.75}$ [2], which require a body-centered cubic unit cell with doubled lattice constant (phase of $UN_{1.5} = U_2N_3$ crystallizing with the α-Mn_2O_3-type structure), were not observed.

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Sensitivity of Pyrimidines and Purines towards Neutron Irradiation

By Prof. Dr. A. Wacker and P. Chandra

Institut für Therapeutische Biochemie
der Universität Frankfurt/Main (Germany)

Pyrimidines are much more sensitive towards X-rays than purines, among which adenine exhibits the highest resistance [1]. On the other hand, when aqueous solutions of pyrimidines and purines are irradiated with thermal neutrons, the bases are decomposed to an extent directly proportional to their nitrogen content – here the purines are more labile, and adenine is most extensively destroyed.

Base [a]	Reduction [%] of the UV extinction of the bases at λ_{max} following irradiation with neutron doses of				Nitrogen content of the bases [%]
	0.18×10^{14} n	0.54×10^{14} n	1.62×10^{14} n	2.7×10^{14} n	
Thymine		9		45	22.2
Uracil	4	12	23	50	24.9
Azauracil	12		29		39.0
Cytosine		17			37.8
Guanine	13	57	52	93	46.3
Azaguanine	22		53		55.0
Adenine		75		97	51.8

Polynucleotide [b]	Amino acid	Inhibition [%] of the incorporation of the amino acid into a polypeptide after irradiation of the polynucleotide with a neutron dose of			
		1.8×10^{13} n	3.6×10^{13} n	7.2×10^{13} n	16.2×10^{13} n
Poly(uridylic acid)	Phenylalanine	18	(10) [c]	38	(12) [c]
Poly(cytidylic acid)	Proline	17	53 (12)		(17)
Poly(adenylic acid)	Lysine	42	75 (27)		(36)

[a] Concentration of base = 50 µg/ml in water at pH 5.6 in a quartz tube; neutron flux = 3.0×10^{11} n/cm²/sec.

[b] Concentration of polynucleotide during irradiation = 1 mg/ml, during protein synthesis = 80 µg of poly-U per ml, 350 µg of poly-C per ml, and 120 µg of poly-A per ml. The incorporation of the amino acids was determined according to [2].

[c] The figures in parentheses indicate the decrease [%] in the ultraviolet optical density of the polynucleotides at λ_{max} in water at pH 5.6.

Whereas the destructive action of X-rays is probably due to the formation of oxygen-containing free radicals, that of the neutrons is proabably due to the nuclear reaction $^{14}N(n,p)^{14}C$.

If the pyrimidines and purines are part of a nucleic acid, they are more resistant to neutrons. However, polynucleotides irradiated with neutrons possess less activity in cell-free protein synthesis [2] than untreated specimens; poly-A is much more labile in this respect than poly-U or poly-C.

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Synthesis of 2,5-Dibromo-1,2,4-triazole by Bromination of 1,2,4-Triazole [1]

By Doz. Dr. C.-F. Kröger and Dipl.-Chem. H. Frank

Institut für Organische Chemie
der Universität Greifswald (Germany)

With the exception of the hydroxymethylation with formalin [2], no electrophilic *C*-substitution of 1,2,4-triazole is known [3]. Moreover, direct halogenation of 1,2,4-triazoles was hitherto considered to be impossible [4].

We have found that, like 1,2,3-triazole [5], 1,2,4-triazole can be brominated even in aqueous solution at room temperature, only one equivalent of bromine being required to lead directly to the dibromo derivative. The yield obtained after treatment with two equivalents of bromine is 24–29 %. The strong acidifying effect of the bromine atoms manifests itself in a pK_a value of 5.23 for 3,5-dibromo-1,2,4-triazole, compared with the value of 10.26 for 1,2,4-triazole.

1,2,4-Triazole (1.4 g or 0.02 mole) is dissolved in 10 ml of water, and 3.2 g (0.02 mole) of bromine is slowly added. At first crystals are formed, but then an oil is deposited from which crystals separate out again after 5–6 h. The solid is filtered off, and the filtrate is treated with further 0.02 mole of bromine. After 2 days, further crops of crystals of the same product can be isolated. The total yield is 1.1 g or 24%. If the reaction mixture is heated on a water bath right from the start for 24 h or longer, the yield increases to 29 %. 2,5-Dibromo-1,2,4-triazole crystallizes from chloroform as colorless needles, m.p. 211–212 °C.

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