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EXPERIMENTAL PRODUCTION OF PENICILLIN AT THE ST. JACOB'S HOSPITAL, LEIPZIG

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Report on

EXPERIMENTAL PRODUCTION OF PENICILLIN AT THE ST. JACOB'S HOSPITAL, LEIPZIG

20097

Reported by:

Mr. P.L. PAVCEK, T.I.I.C

CIOS Target No. 22/1289
Food and Agriculture

COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

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ST. JACOB'S HOSPITAL.

Department of Dermatology.

Dr. Joseph Kimmig started research on penicillin under Prof. Joseph von Kennel in Kiel in 1942. In 1943 the firm of Schering A.G., supporting the work, transferred the project to St. Jacob's Hospital where it has been in progress ever since. The Hospital is a very new building and has beautiful laboratories and equipment.

Penicillin was being grown on a rather small scale in one of the laboratories in bottles containing 300 ccs. of Chopek-Dox medium. No other adjuncts were added. The mold, of which a culture was obtained, was isolated by Kimmig from the flower of Blue Berries and was identified as P. Chryseum flavum. As high as 40 units of Penicillin per cc. were produced in a ten day incubation at 26°C. but for continuous operation the figure was 10-15 units/cc.

A special procedure was adopted to build up the inoculum. The spore suspension gorwn on a standard nutrient Kuczynski agar (sample obtained) was diluted and plated out until a culture originating from 1 spore was obtained. 12-15 plates of such spore cultures were investigated separately for ability to produce Penicillin, and in this manner the most potent culture was selected.

For testing the unitage in the final solution, 1 cc. of the test solution was inoculated with S. aureus incubated at 37° for 24 hours. Dilutions were made according to the attached protocol (Table 1).

The total weekly capacity of the laboratory set-up was 200,000 units. Some experiments had been conducted with submerged cultures but maximum unitage obtained was 1/4 Unit/cc. Kimmig felt that this culture was not suited to this type of culturing.

Other workers on Penicillin in Germany included: Bernhauer in Prague, R. Kuhn (Heidelberg) and the firm Schatt & Genossen (Jena).

Dr. Kimmig demonstrated a new observation on inhibition of oxygen uptake by S. aureus in the presence of Penicillin or malonic acid. On a Ringer phosphate medium 1:10,000 malonic acid produced the same inhibition

as did Penicillin. According to Kimmig the effect of Penicillin may be due to a disturbance in the succinic acid cycle.

Dr. Hermann Fox also associated with Schering A.G. had done research on sulfonamides.

A sulfonamide like compound had been produced by I.G. Farben (Leverkusen) and had very powerful bactericidal effects. The compound, tetra-brom•-benzil, had not been clinically tested as yet.

Several reprints from Kimmig were obtained. One on the effect of para amino benzo acid in preventing sunburn was especially interesting.

Testschema für Kulturflüssigkeit

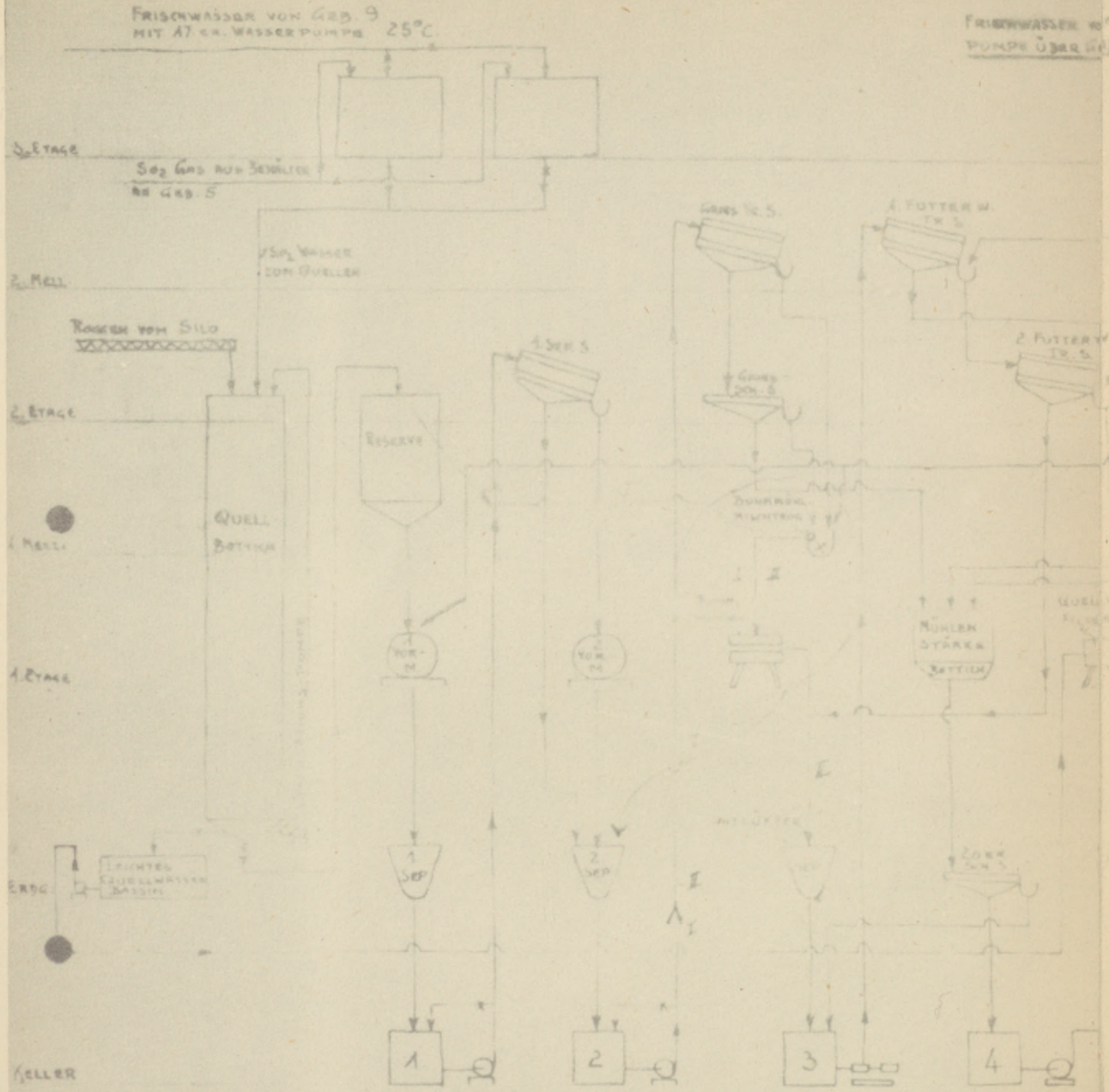
Datum: Fraktion:

Verdünnungsstufe	ccm	Wachstum	PE
VSt D 1	0.1 + 5 Standard (1 × konz.		500
2 ccm D + 8 ccm	0.15 + „		330
Puffer (1 : 500)	0.2 + „		250
	0.25 + „		200
	0.3 + „		170
	0.35 + „		140
	0.4 + „		125
	0.45 + „		110
	0.5 + „		100
VSt D	0.1 + „		100
1 ccm C + 9 ccm	0.2 + „		50
Puffer (1 : 100)	0.25 + „		40
	0.3 + „		33
	0.4 + „		25
	0.5 + „		20
VSt C 1	0.2 + „		25
2 ccm C + 8 ccm	0.25 + „		20
Puffer (1 : 50)	0.3 + „		17
	0.4 + „		13
	0.5 + „		10
VSt C	0.1 + „		10
1 ccm Kfl + 9 ccm	0.13 + „		8
Puffer (1 : 10)	0.2 + „		5
	0.3 + „		3.5
	0.5 + „		2
VSt B	0.1 + „		1
Unverd. Kfl	0.2 + „		0.5
	0.3 + „		0.35
	0.5 + „		0.2

Kontrolle ohne Zusatz

VSt A

ccm Kfl	ccm Puffer	ccm 2 × konz. Std.	Wachstum	PE
0.5	2	2.5		0.2
1.0	1.5	2.5		0.1
1.5 ✓	1.0	2.5		0.07
2 ✓	0.5	2.5		0.05
2.5 ✓	0	2.5		0.04



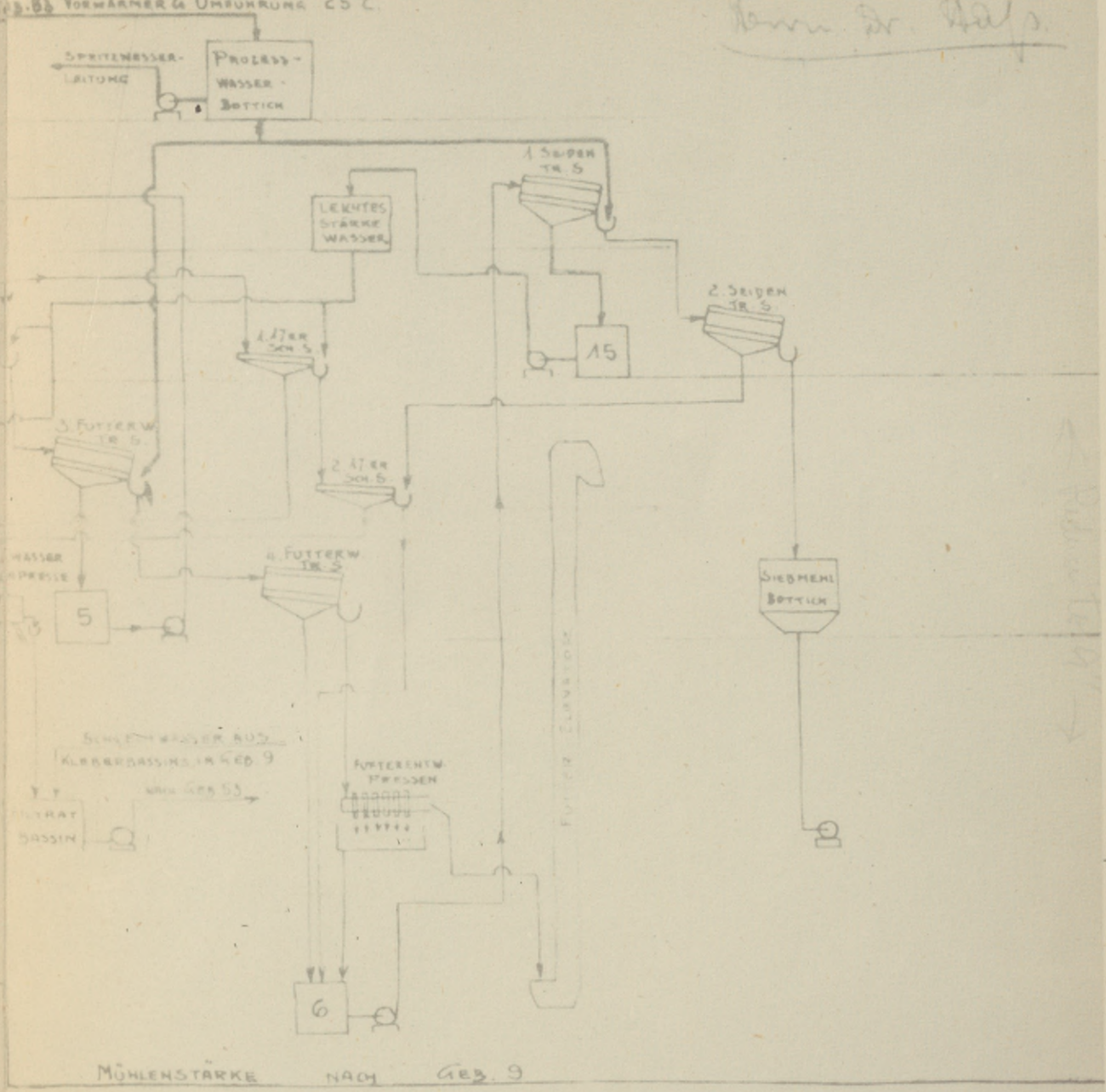


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FIGURE I. FLOW DIAGRAM OF PLANT FOR STARCH MANUFACTURE FROM RYE

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