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EFFECT OF ACIDITY ON THE ACTIVITY OF PEPSIN IN THE SOLID STATE.*

BY ALLEN DINGER AND W. E. HONSINGER.

Literature references indicate that stability of pepsin in solution is affected by the p_H value of the solution. Examination of pepsin of the market revealed a considerable range in inherent acidity, hence it seemed worth while to set aside samples of dry pepsin of low and high acidity and test them from time to time to note if variation in its acidity had any effect on the stability of pepsin activity.

We set aside one sample with an acidity of 7.66% calculated as hydrochloric acid and another with an acidity of 2.43% calculated as hydrochloric acid. These were granular pepsins U. S. P. IX 1–3000. Both were kept in tightly stoppered bottles, kept at ordinary room temperature in the dark, but were opened from time to time to withdraw assay samples. In one year the pepsin with a high acidity had caked and deliquesced somewhat. A strong odor had likewise developed. The low acidity sample was still dry, free-flowing, granular and comparatively odorless.

These samples were tested for activity according to the U. S. P. IX method at intervals indicated, with the following results:

	Residue undigested albumen.	
	Low acid pepsin.	High acid pepsin.
After 3 months	.5 cc.	.75 cc.
After 6 months	.5 cc.	.75 cc.
After 9 months	.3 cc.	.7 cc.
After 12 months	.3 cc.	.7 cc.
After 18 months	.2 cc.	1.4 cc.
After 21 months	.65 cc.	1.7 cc.
After 24 months	2 cc.	4 cc.

These observations indicate that pepsin with a low acidity is more stable than with a high acidity.

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