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BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY
PEORIA 5, ILLINOIS

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Dr. Joshua Lederberg
Associate Professor of Genetics
The University of Wisconsin
Madison 6, Wisconsin

Dear Dr. Lederberg:

Thank you for your letter of December 30, 1953.

The fermentation reactions of the species of Saccharomyces are rather limited, and a search of our records show only a few species which assimilate cellobiose. I do not know whether these species ferment this sugar, but if they do, it would probably be a rather weak, slow fermentation. Some strains of Saccharomyces lactis assimilate it, others do not; this species is haploid and heterothallic, and we have mating types for it. Some of these mating types are cellobiose positive, some are cellobiose negative. You are welcome to them if you want them.

Nearly all strains of Saccharomyces fragilis assimilate cellobiose, a few do not. This species is diploid and homothallic. Saccharomyces marxianus assimilates cellobiose and is usually diploid and always homothallic so far as I know. We have many strains of S. fragilis and a few of S. marxianus should you desire them. These species are dissimilar to all other species of the genus and should not be in Saccharomyces. They cannot be expected to hybridize with typical species of Saccharomyces.

Saccharomyces fermentati assimilates cellobiose and may be able to ferment it as it is a relatively strong fermentor. This species is very refractory to sporulation, and I would guess it is homothallic. I have some doubt that it belongs in the genus.

From my own experience, I know that some strains of Hansenula anomala ferment cellobiose with production of gas. I think they probably

ferment it as fast as any other yeasts would. Some strains produce gas at 24 hours, but even at 7 or 8 days the fermentation remains incomplete. We could send you diploid strains or mating types of Hansenula anomala and related species though we would not know how rapidly they would attack cellobiose. This species is ordinarily diploid.

A number of species of other cellobiose positive yeasts are available from our Collection. Some of these are nonsporulating.

Please let me know your further desire so far as cultures are concerned. I would greatly appreciate it if you would send me reprints of all your available papers on genetics and sexuality of yeasts and bacteria.

Sincerely yours,

Lynferd J. Wickerham

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