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United States Patent [19]

Harris et al.

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[54] **METHOD OF PREPARING REDUCED FAT FOODS**

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Related U.S. Application Data

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[52] **U.S. Cl.** **426/573;** 426/578; 426/658; 426/661; 426/603; 426/604; 426/804; 426/18; 426/28; 127/29; 127/32; 127/33; 127/36; 127/38; 127/39; 127/40; 127/58; 127/65; 127/69; 127/70; 127/71; 252/315.3

[58] **Field of Search** 426/573, 578, 658, 661, 426/603, 604, 804, 18, 28; 127/29, 32, 33, 36, 38, 39, 40, 58, 65, 69–71; 252/315.3

[56] **References Cited**

U.S. PATENT DOCUMENTS

675,822	6/1901	Duryea .	
696,949	4/1902	Duryea .	
2,068,051	1/1937	Canton	426/578
2,131,064	9/1938	Musher	426/633
2,503,053	4/1950	Kerr	127/38
2,791,508	5/1957	Rivoche	426/573
2,805,995	9/1957	Adelson	252/33.6
2,978,446	4/1961	Battista et al.	260/212
3,023,104	2/1962	Battista et al.	99/1
3,067,067	12/1962	Etheridge	127/71
3,093,486	6/1963	Krett et al.	99/144
3,133,836	5/1964	Winfrey et al.	127/71
3,197,337	7/1965	Schink	127/28
3,219,483	11/1965	Goos et al.	127/28
3,351,489	11/1967	Battista et al.	127/32
3,370,840	3/1968	Sugimoto et al.	195/32 R
3,532,602	10/1970	Seidman	195/31
3,556,942	1/1971	Hathaway	195/31
3,582,359	6/1971	Horn	426/573
3,586,536	6/1971	Germino	127/32
3,600,186	8/1971	Mattson	99/1
3,666,557	5/1972	Jensen et al.	127/32
3,671,269	6/1972	Germino	99/139
3,705,811	12/1972	Yoshida et al.	99/91
3,717,475	2/1973	Germino	99/134
3,730,840	5/1973	Sugimoto et al.	195/31 R
3,830,697	8/1974	Yoshida et al.	195/31 R
3,879,212	4/1975	Yoshida et al.	106/213
3,881,991	5/1975	Kurimoto et al.	195/31 R
3,883,365	5/1975	Forsberg	127/60
3,928,062	12/1975	Yamauchi	127/60
3,962,465	6/1976	Richter et al.	426/48
3,986,890	10/1976	Richter et al.	127/38
4,009,291	2/1977	Mitchell	426/548
4,069,157	1/1978	Hoover	210/433 M

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

1016006	8/1977	Canada .
0052899	2/1982	European Pat. Off. .

(List continued on next page.)

OTHER PUBLICATIONS

Allmere et al., Derwent Abstract 93-174080 for SU 1736975, May 1992.

(List continued on next page.)

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[57] **ABSTRACT**

A method of preparing reduced fat foods is provided which employs a fragmented, debranched amylopectin starch precipitate. A debranched amylopectin starch is precipitated and then fragmented to form an aqueous dispersion that is useful in replacing fat in a variety of food formulations. The debranched amylopectin starch can be derived from a starch which contains amylopectin, e.g. common corn starch and waxy maize starch, by gelatinizing the starch followed by treatment with a debranching enzyme, e.g. isoamylase or pullulanase and precipitation of the debranched starch.

26 Claims, 1 Drawing Sheet