

A Two Proteins™

Dr. Shruti Jani

MD, PhD, Bhavnagar, Gujarat, India

Abstract: Milk is divided into two groups type A1 and type A2 on the basis of betacasomorphin-7 production. A1 milk on enzymatic digestion produces BCM-7 but A2 does not because of mutation that changed proline to histidine at position number 67 in β -casein of type A1 milk. This article is regarding, presence of A2 Proteins in to given sample of milk with the help of Rapid Proline(A2) detection kit. It's a sincere efforts of a Canadian startup company which will be helpful to dairy industry, all over the World. The Rapid Detection Kit is Based on well known ELISA Technic and user friendly.

Keywords: A two Proteins, A two Milk

1. Introduction

A two proteins™ Inc. will be a Canadian start-up that is deeply involved in cutting-edge innovation in the field of medical/ healthcare/Dairy/Agriculture research products based on original ideas of its Founders, who have over 14 years of proven expertise in bio-technology research and development.

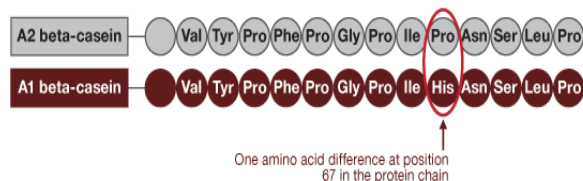
2. What is a Two?

Cows' milk is about 87 percent water and 13 percent solids—the solids being a combination of fat, carbohydrates in the form of lactose, minerals, and protein. The major component of the milk proteins is casein; in turn about 30-35 percent of the casein (equivalent to two teaspoons in a litre of milk) is beta-casein, of which there are several varieties, determined by the genes of the cow. The most common of these variants are A1 and A2 (named for the order in which they were identified by scientists), with the sole difference between the two being one of the 209 amino acids that make up the beta-casein proteins: a proline occurs at position 67 in the chain of amino acids that make up the A2 beta-casein, while in A1 beta-casein a histidine occurs at that position.

3. Towards Solution

The percentage of the A1 and A2 beta-casein protein varies between herds of cattle, and also between countries and provinces. While African and Asian cattle continue to produce only A2 beta-casein, the A1 version of the protein is common among cows in the western/European region. The A1 beta-casein type is the most common type found in cow's milk in Europe, the USA, Australia and New Zealand. On average, more than 70 percent of Guernsey cows produce milk with predominantly A2 protein, while among Holsteins and Ayrshires between 46 and 70 percent produce A1 milk.

Protein chain showing amino acids in A1 and A2 beta-casein



Majority milk in North America is A1 protein Milk which has demonstrated a series of Health Hazards and Lactose intolerance Where's A2 protein milk prevents all those complications associated with a1Protein Milk. 42% of total cows are A2/A2 in Canada. There is no A2 protein testing facilities in Canada. There is no market awareness about A2 protein in Canada whereas Australia, NewZealand, UK and some part of the USA has availability of A2 Protein Milk/ Milk Products. Dairy Farmers of Canada wish to initiate the process, testing and market awareness about A2 Protein in Canada. Since such facility is not available, Farmers cannot create awareness or market for the irpremium products. The Canadian population is deprived of A2 Protein products.

Which Milk is Safe?

Up to 99.9% of Commercial Milk is A1 –Milk
 10% Ayreshires-A2
 25% Holsteins –A2
 33% Jerseys and Brown Swiss –A2
 96% Guernsey-A2
 100% Goat and Sheep Milk

4. Conclusion

We wish to create A2 testing, consumer awareness and market for A2 Protein in North America. The company will establish A2 protein testing facilities and standardization technology in the dairy industry to create a strong identity for A2 protein milk and its milk products. Canadian farmers association has extended their complete help to pursue the project. McMaster University has supported the project by extending research and development facility. Although the founders are highly capable enough to run the projects, DFC alliance can facilitate the project by its strong alliance with farmers group in Canada. Some joint campaign with DFC can benefit company to establish identity. Canadian Dairy Network has initiated the process by publicizing the articles on A2 protein and educating farmers.

Future Products to offer

- 1) A Two milk detection kit
- 2) A Two milk powder: Sachet, 440g, 880gm
- 3) A Two milk chocolates
- 4) A Two Cheese
- 5) A Two milk Whey protein
- 6) A Two milk Infant formula

Volume 8 Issue 2, February 2019

www.ijsr.net

Licensed Under Creative Commons Attribution CC BY

References

- [1] Canadian Dairy Network, 19th Dec 2016, Beta Casein, A2 Milk and Genetics by Lynsay Beavers, Industry Liaison Coordinator, CDN Brian Van Doormaal, General Manager, CDN <https://www.cdn.ca/document.php?id=461>
- [2] Researchgate, A1 and A2 Milk & its impact on human health, March 2016, Prasanta Boro, Binoy Chandra Naha, Deep Prakash Saikia, Chandra Prakash, International Journal of Science and Nature, I.J.S.N., VOL.7(1)2016:01-05 https://www.researchgate.net/publication/299334264_A1_AND_A2_MILK_ITS_IMPACT_ON_HUMAN_HEALTH
- [3] Medical Newstoday, A2 milk: What you need to know By Megan Ware RDN LD & Megan Metropulos MS RDN Reviewed by Natalie Butler, RD, LD, Reviewed Tue 25 July 2017 <https://www.medicalnewstoday.com/articles/318577.php>
- [4] Forbes, Should You Be Drinking A2 Milk? Aug 23, 2016 by David L. Katz, MD, MPH-Past President, American College of Lifestyle Medicine; Founder, True Health Initiative. <https://www.forbes.com/sites/davidkatz/2016/08/23/should-you-be-drinking-a2-milk/#1638a5ff6dcd>
- [5] US National Library of Medicine National Institutes of Health, Indian J Endocrinol Metab, c, 2012 Sep-Oct; 16(5): 856. doi: 10.4103/2230-8210.100685, PMCID: PMC3475924, PMID: 23087884 by Monika Sodhi, Manishi Mukesh, Ranjit S. Kataria, Bishnu P. Mishra, and Balwinder K. Joshi. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3475924/>
- [6] Origin milk, The Devil in the Milk A1 or A2? How Beta-Caseins Are Changing the Dairy Industry, Keith Woodford, December 2009, Vol.39, No.12, AcresUSA. http://www.originmilk.com/wp-content/uploads/2016/07/Acres_Woodford.pdf
- [7] Food Safety New Zealand, Food Safety. <https://www.foodsafety.govt.nz/elibrary/beta-casein-A1-A2-in-milk.htm>
- [8] CBS News, Oct 12, 2017, Specialty product a2 Milk popular with consumers but not dairy industry. <https://www.cbsnews.com/news/special-a2-milk-says-its-easier-on-stomach/>
- [9] The Washington Post, c By Ellie Krieger Columnist, Food on August 15, 2017 https://www.washingtonpost.com/lifestyle/wellness/trouble-with-dairy-a-new-type-of-milk-could-provide-a-solution/2017/08/10/67b8730a-7bb7-11e7-9d08-b79f191668ed_story.html?noredirect=on
- [10] International Milk Genomics Consortium, What's in the Dairy Case? A2 Milk, May 2018 Issue by Lauren Milligan Newmark in SPLASH!® milk science update: May 2018 Issue. <http://milkgenomics.org/article/whats-dairy-case-a2-milk/>
- [11] International Milk Genomics Consortium, Milk Casein Proteins: Ancient, Diverse, and Essential, May 2018 Issue by Lauren Milligan Newmark in SPLASH!® milk science. <http://milkgenomics.org/article/milk-casein-proteins-ancient-diverse-essential/>