Prebiotic, Probiotic and Synbiotic Food Information Resources on the Cyberspace: A Study

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Abstract

Use of computers and net working through satellites has made the world space literally zero to be called as cyber space. Information is a vast and, inexhaustible resource that affects all disciplines and dairy science and technology are no exceptions. The emergence of Internet as a new tool of information access, storage, delivery and retrieval with high speed has become a media for digital resources as well and it provides seamless access and opportunities to dairy science students, research scholars, faculty members and scientists. The evolution of the 'information age' in dairy science and technology is mirrored in the exponential growth of dairy science and technology related web resources, increasing numbers of online accessible databases and expanding services and publications available on the Information Superhighway. The developments outlined above likely have a significant impact on efficiency and quality of future dairy science and technology education, research and development. This paper attempts to profile selected key Internet resources deal with Probiotic, Prebiotic and Synbiotic foods and discuss about the criteria for evaluation of Internet resources to ensure quality dairy science and technology related information retrieval from the cyberspace.

Keywords: Internet, Prebiotics, Probiotics, Synbiotics, World Wide Web, Dairy Science, Dairy Technology

1. introduction

The Internet, a world wide network, which connects millions of users spread across continents, exchanges thousands of petabytes of information, accessing over thousands of databases that cover everything from cooking to cloning, all that at a relatively inexpensive cost, offers a virtually unlimited amount of information. The Internet provides a huge collection of digital information resources that are useful for the students, research scholars, faculty

members and scientists in the fields of dairy science and technology. Some of the important resources available on the cyberspace concerned with Dairy Science, Dairy Technology, Probiotics, Prebiotics and Synbiotic foods are profiled in this article.

1.1 Gateway Sites

Gateways are useful to get quality web resources from the cyberspace. They are collaborative ventures in which information professionals and other subject matter specialists pool their knowledge and experience to collate information on a specific subject. A select list of gateway sites dealing with dairy science and technology are furnished in Table-1

Table - 1: Gateway Sites

Web Resource Title	*Uniform Resource Locator*
Dairy Science Internet Resources	http://www.dasc.vt.edu/links.html
Virtual Library for Dairy Production	http://www.ansi.okstate.edu/library/dairy/
NetVet's Cow Links	http://netvet.wustl.edu/cows.htm
International Dairy Foods Association	http://www.idfa.org/
Missouri dairymen's Resource Guide	http://www.idfa.org/
Dairy Network	http://www.dairynetwork.com
International Dairy Federation	http://www.fil-idf.org
Wisconsin Centre for Dairy Research	http://www.cdr.wisc.edu/
World's Best Milk Quality Website	http://www.uwex.edu/milkquality/

1.2 Journals

Journals are always carriers of nascent information in any science and the students, research scholars, faculty members and scientists of any disciplines always look for journals to know latest knowledge. Therefore, web sites of a few important journals which are useful for dairy science and technology professionals are furnished in Table –2. A number of free full-text journals dealing with various aspects of food science and technology are available at www.doaj.org

Table - 2: Journal Web Sites

Web Resource Title	*Uniform Resource Locator*
Journal of Dairy Science	http://jds.fass.org
International Journal of Probiotics and Prebiotics	http://www.newcenturyhealthpublishers.com/ probiotics_and_prebiotics/index.php

1.3 News Groups / Discussion Lists

Getting along with people of same thoughts is quite difficult. But, not so on the Internet. The newsgroup feature of the Internet allows an Internet user to participate in any discussion that ranges from recreational activities to scientific research. Newsgroups enable us to read messages, articles and to write messages and articles and to exchange ideas among peers. Newsgroups can be searched through any search engine like Yahoo, Google, etc. Few news groups which are dealing with Dairy Science directly or indirectly are furnished in Table – 3.

Table - 3: Dairy Science Newsgroups

Newsgroup Title	*Uniform Resource Locator*
Dairy Cattle	http://tech.groups.yahoo.com/group/dairycattle/
E-Dairy	http://tech.groups.yahoo.com/group/E-Dairy/
Small Dairy Farms	http://tech.groups.yahoo.com/group/SmallDairyFarms/
Food Science & Technology	http://tech.groups.yahoo.com/group/FoodSciencesandTechnology/
Large Dairy Farms	http://tech.groups.yahoo.com/group/largedairyfarmers/

2. Probiotics

The term "probiotics" refers to dietary supplements or foods that contain beneficial, or "good," bacteria normally found in your body. These microorganisms may assist with digestion or help protect against some harmful bacteria. There is growing public and scientific interest in probiotics. Researchers are studying whether probiotics taken as foods or supplements can help to cure or prevent some health problems faced by the human beings. In this context, a select list of web resources provide useful information about probiotics is furnished in Table-4.

Table - 4: Useful Web Resources on Probiotics

Web Resource Title	*Uniform Resource Locator*
US Probiotic	http://www.usprobiotics.org
Innovative With Dairy	www.innovatewithdairy.com
Probiotics Amsterdam	http://www.probiotics-amsterdam.org
Dairy Management Inc.	http://www.dairyinfo.com
European Feed and Food Cultures Association	http://www.dairyinfo.com
FDA - Center for Food Safety and Applied Nutrition	http://vm.cfsan.fda.gov/~dms/supplmnt.html
International Scientific Association for Probiotics and Prebiotics	http://www.isapp.net/

National Dairy Council	http://www.nationaldairycouncil.org
Probiotics for Life	http://www.probiotics.co.nz/HP.html
Mayo Clinic	http://www.mayoclinic.com/health/probiotics/AN00389
Probiotics.Com	www.probiotics.com
Microbax India	http://www.microbax.com/

3. Prebiotics

Prebiotics are defined as non-digestible food ingredients that may beneficially affect the host by selectively stimulating the growth and/or the activity of a limited number of bacteria in the colon. Actually, the term prebiotics was coined by Professor Gibson and a Belgian colleague, Dr Marcel Roberfroid, of Louvain University, Brussels in 1995. A select list of web sites deal with prebiotics is furnished in Table - 5

Table - 5: Useful Web Resources on Prebiotics

Web Resource Title	*Uniform Resource Locator*
Prebiotics.com	http://www.prebiotics.com
International Food Information Council	http://www.ific.org/publications/factsheets/preprobioticsfs.cfm
About Nutrition	http://nutrition.about.com/od/therapeuticnutrition1/p/pro_prebiotics.htm
Vegetarian Nutrition	http://www.vegetarian-nutrition.info/updates/prebiotics.php
Functional Food Net	http://www.functionalfoodnet.org
Food Info Net	http://www.food-info.net/uk/ff/ prebiotics.htm
Second Generation Prebiotics	http://www.food.rdg.ac.uk/people/afsrastl/secondgen.htm
International Association of Infant Food Manufacturers	http://www.ifm.net/industry/prebiotics.htm
Unlimited Health	http://www.foodpluspharma.org

4. Synbiotics

Synbiotics are foods or dietary supplements that contain a mixture of probiotics and prebiotics. The premise behind developing synbiotics is that a combination of probiotics and prebiotics may improve the survival of organisms as they pass through the stomach and small intestine, thus enhancing their effects in the colon. It has been proved that Synbiotics improve the survival of the probiotic organism by providing the specific substrate to the probiotic organism for its fermentation.

Table - 6: Useful Web Resources on Synbiotics

Web Resource Title	*Uniform Resource Locator*
Synbiotics	http://www.synbiotics.fr/
Nutrition.Com	www.nutrition.com
Synbiotic Food Supplements	http://www.alibaba.com/catalog/10975260/Synbiotic_Food_Suppliments_In_Capsules.html

5. Sites for search of research articles

Web site for Research articles
www.ncbi.nlm.nih.gov
www.nlm.nih.gov
http://www.findarticles.com/
http://en.wikipedia.org
www.nytimes.com/college
www.lib.uoguelph.ca

Indian Government

National dairy Development Board http://www.nddb.coop
Ministry of Agriculture Department of Agriculture and Co-operation http://www.nic.in/agricoop
Department of Food Processing Industries http://www.nic.in/mofpi
Department of Agriculture and Research / ICAR http://www.nic.in/icar
Agriculture and Processed Food Products Export Development Authority (APEDA) http://www.apeda.com/

International

Food and Agriculture Organization (FAO) http://www.fao.org/
World Trade Organization http://www.wto.org/
International Dairy Foods Association http://www.idfa.org/

6. Conclusion

It has been understood that probiotics, prebiotics, and synbiotics have the greatest potential to positively affect the nutritional status and overall health of infants and young children, especially those in day care settings who are at high risk for GI infections. There is increasing interest in adding prebiotics to infant formulas. Many are in the development stage. Therefore, the students, research scholars, faculty members and scientists in these areas should come forward to make use of the tremendous information resources offered by the cyberspace to get them abreast of the latest happenings in these areas which will help them to excel in their area of specializations.