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5-1-2014

Finding Plant-Based Foods in PubMed: A Problem for our Foodie Future

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Finding Plant-Based Foods in PubMed: A Problem for our Foodie Future

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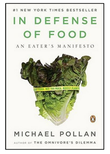
"Eat Food, Not Too Much, Mostly Plants"



Michael Pollan's phrase, from his 2008 *book In Defense Of Food*, caught the spirit of the young foodie generation. But the phrase was also recently endorsed as wise diet advice by Yale researchers in *Annual Review of Public Health*
[Katz DL, Meller S. Can we say what diet is best for Health? Ann Rev Public Health 2014; 35: 83-103].

The attention to plant-based foods (PBFs) by the scientific community also came to the fore recently in a list of the 100 most popular research papers of 2013 by the Altmetric site, in which two of the first eight are on PBFs.
[http://www.altmetric.com/blog/the-2013-top-100-list/]

So Many Plant-Based Foods!

Part of the problem of searching for PBFs is the sheer number and variety of them. The MeSH tree lists 183 taxonomic families of plants. To give a sense of the tremendous variety of plant-based foods, in the green side panels we're listing the families in MeSH with the most articles relating to food use...

Fabaceae
Poaceae
Solanaceae
Liliaceae
Rutaceae
Brassicaceae
Rosaceae
Asteraceae
Sterculiaceae
Vitaceae
Apiaceae
Chenopodiaceae
Polygonaceae
Arecaceae
Ericaceae
Theaceae
Euphorbiaceae
Cucurbitaceae
Lamiaceae
Linaceae
Lauraceae
Anacardiaceae
Araliaceae
Punicaceae
Oleaceae
Rubiaceae
Zingiberaceae

Soybean
Fabaceae: Soybeans

Broccoli
Brassicaceae: Brassica

Apple
Rosaceae: *Malus*

Peppermint
Lamiaceae: Mentha piperita

Turmeric
Zingiberaceae: Curcuma

Most Plant-Based Foods Are Not In The Food Explosion

The main problem in searching for plant-based foods (PBFs) in PubMed is that most of them are not in the *Food* explosion, but only in *Plants*. This is especially tricky because there ARE terms in the *Food* explosion that seem to include PBF's, but which in fact contain only a relatively small number of citations.

In the *Food* explosion, three large categories of PBFs are treated quite differently.

Candy +
Cereals +
Condiments
Spices
Crops, Agricultural +
Dairy Products +
Dietary Carbohydrates +
Dietary Fats +
Dietary Fiber +
Dietary Proteins +
Dietary Supplements +
Eggs +
Food Additives +
Food, Genetically Modified
Food, Preserved +
Foods, Specialized +
Fruit
Meals +
Meat +
Micronutrients +
Vegetables +

An explosion under *Food: Condiments*. Contains one sub-term (*Black Pepper*)

A MeSH term under *Food*, but not an explosion

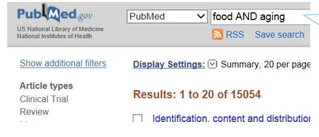
A MeSH explosion under *Food*, with a relatively small number of sub-terms.

Search Problems: Examples

Although MeSH terms that are in the *Food* explosion are occasionally added to PBF articles as a category term, they fail to retrieve most articles on PBFs.

This search fails to capture important citations indexed to terms only in the *Plants* explosion, such as this one

A double-blind provocative study of chocolate as a trigger of headache.
Marcus DA, Scharff L, Turk D, Gourley LM.
Cephalalgia. 1997 Dec;17(8):855-62; discussion 800.
PMID: 9453274 [PubMed - indexed for MEDLINE]
Related citations



This search also fails to yield key citations..

Blueberries and neuronal aging.
Shukitt-Hale B.
Gerontology. 2012;58(6):518-23. doi: 10.1159/000341101. Epub 2012 Aug 1
PMID: 22907211 [PubMed - indexed for MEDLINE]
Related citations

A Tip On Searching For Plant-Based Foods

Most plant-based food (PBF) terms are only in the *Plants* explosion, so searching in PubMed for Food will miss many relevant PBF articles. Fortunately, however, many articles on PBFs are indexed with other nutrition-diet MeSH terms. So the best way to find articles on PBFs is to combine the *Plants* explosion AND a Food-Diet-Nutrition hedge such as this one:

food OR foods OR beverages OR diet OR dietary OR vitamin OR vitamins OR nutrition OR nutritional OR nutrition disorders OR food industry OR nutritional physiological phenomena OR dietary fats OR dietary proteins OR feeding behavior

[From: Food, Diet & Nutrition – An Inclusive PubMed Search. http://blog.lib.uiowa.edu/ needtoknow/2013/08/14/food-diet-nutrition-an-inclusive-pubmed-search/]

... Taxonomic relationships are important because families have a biochemical, and therefore nutritional, uniqueness. Biochemical variety is the spice of a good diet!

Banana
Musaceae: *Musa*

Sweet potato
Convolvulaceae: Ipomoea batatas

Litchi
Sapindaceae: Litchi

Dragon Fruit
Cactaceae
(No MeSH term)

Pawpaw
Annonaceae: Asimina

Juglandaceae
Betulaceae
Clusiaceae
Cannabaceae
Myrtaceae
Musaceae
Malvaceae
Amaranthaceae
Actinidiaceae
Piperaceae
Ranunculaceae
Papaveraceae
Convolvulaceae
Grossulariaceae
Aquifoliaceae
Pedaliaceae
Sapindaceae
Moraceae
Caricaceae
Fagaceae
Bromeliaceae
Cactaceae
Dioscoreaceae
Araceae
Elaeagnaceae
Lecythidaceae
Erythroxylaceae
Annonaceae