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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, Mitter 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 PBF 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...

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.

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.

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.


... 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

Soybean  
Fabaceae: Soybeans

Broccoli  
Brassicaceae: Brassica

Apple  
Rosaceae: Malus

Peppermint  
Lamiaceae: Mentha piperita

Turmeric  
Zingiberaceae: Curcuma

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, Spices +  
 Fruit +  
 Meats +  
 Milks +  
 Microorganisms +  
 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.

The scientific community also
in the green side panels
we're listing the families in MeSH with the most articles relating to food use...

Fabaceae  
Poaceae  
Solonaceae  
Liliaceae  
Rutaceae  
Bromeliaceae  
Rosaceae  
Asiaticae  
Sterculiaceae  
Vitaceae  
Asteraceae  
Zingiberaceae  
Chenopodiaceae  
Apiaceae  
Sterculiaceae  
Asteraceae  
Rosaceae  
Brassicaceae  
Rutaceae  
Liliaceae  
Solanaceae  
Poaceae  
Fabaceae