18th National and 3rd International Conference of Iranian Biophysical chemistry

هجدهمین همایش ملی و سومین همایش بین المللی بیوشیمی فیزیک ایران

25-26 Des, 2024, University of Hormozgan

۶-۵ دی ماه ۱۴۰۳، دانشگاه هرمزگان

Enhancing Publication Retrieval in Basic Sciences: Insights from a Systematic Review on Structure-Sweetness Relationship of Sweet Molecules

Elaheh Kashani-Amina*[1], Homa Faraji [2], Sarah Nouriyengejeh [3], Azadeh Ebrahim-Habibi [4]

1. Corresponding and first author, a: Biosensor Research Center, Endocrinology and Metabolism Molecular - Cellular Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, b: DiyaraZist Research and Education Group, Tehran, Iran, e.kashani.a@gmail.com, e.k.amin@diyarazist.ir
2. Second author, a: Biosensor Research Center, Endocrinology and Metabolism Molecular - Cellular Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, b: DiyaraZist Research and Education Group, Tehran, Iran, homa.faraji@gmail.com
3. Second author, a: Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, b: DiyaraZist Research and Education Group, Tehran, Iran, noorisarah87@gmail.com
4. Fourth author, Biosensor Research Center, Endocrinology and Metabolism Molecular - Cellular Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, aehabibi@sina.tums.ac.ir

Abstract

To investigate the structure-sweetness relationship of sweet molecules, four scientific databases Web of Science, SCOPUS, PubMed, and FlavorDB were systematically searched for related studies on sweet proteins and small sweet molecules on the SweetenersDB database. No comprehensive study on this topic was retrieved. Then, the same search was performed with very general keywords such as sweetener, sweet molecules, and sweetening agents. A total of 8231 studies were retrieved, but only 122 studies for small molecules and 38 studies for sweet proteins met the inclusion criteria for the structure-function relationship investigations. Analyses showed that the studies on small sweet molecules used more diverse names than those common names used in the SweetenersDB. For example, instead of using saccharin, acesulfame, and cyclamate, they used sulfamate, sulfonyl, or even the chemical formula RNHSO3-M+. So, few and scattered studies were retrieved in the primary search. Including these new keywords yielded so many related studies that practically no new studies were demanded.
Also, we found many eligible studies that had either not been retrieved at all or were excluded during the initial screening of the title and abstract. This happened because, in the title/abstract/keywords of these articles, there was either no informative keyword such as

"sweetener", or no sufficient and accurate information about the purpose of the study (structure-function relationship). Therefore, they were missed in the primary search or further screening steps. In conclusion, the diversity of expertise in basic sciences results in a diversity in terms and points of view on a topic. So, it is suggested that the keywords and purpose of a study be clearly and accurately included in the title, abstract, and keywords. These are the first, and probably the only sections to have a chance to be retrieved and caught by the readers.

Key words: systematic review, basic sciences, title, abstract, keyword, skills