

Oral presentation

Comparing apples and lemons: a literature review reveals similarities in the phytochemicals of antidiarrheal plants

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Introduction. The World Health Organization reports that nearly two million children die each year because of dehydration brought on by diarrhea (WHO and UNICEF 2004). Treatments by biomedical specialists include oral rehydration therapy to treat the dehydration. However, many other non-biomedical treatments exist. Instead of treating the outcome of diarrhea, namely dehydration, alternative therapies can directly treat the patients' gastrointestinal tissues or foreign sources of irritation (bacteria, toxins, viruses, parasites), eliminating the cause of the diarrhea altogether. Since diarrhea affects all people at some point in their lives, cultural groups around the world have treatments. Also, because field workers must travel, treatments for diarrhea are often a topic of conversation that is broached early in the trip. Thus, there are many ethnobotanical and anthropological references that describe anti-diarrheal therapies. And although only a handful of all plants have been phytochemically analyzed, there are several species whose data have been published recently. Thus, I combined the information from these three fields of Study (ethnobotany, anthropology, and chemistry) in an interdisciplinary literature review. By correlating plants used in treatments with their known chemical composition, I was able to better hypothesize their mechanisms of therapeutic action.

Objectives. To tabulate and investigate possible mechanisml correlations between anti-diarrheal plants and their known phytochemical compositions.

Methods. A literature search in English, Spanish, and Portuguese yielded over 500 articles and books that discussed ethnobotanical remedies for diarrhea. Sources were evaluated for reliability, read, and categorized. A list was created with over 400 plant species used to treat diarrhea. Plant species names and plant families were verified through Tropicos3 and the International Plant Name Index. Plant Families and Genera frequencies were tabulated. A second literature search obtained information on chemicals that were found in the most frequently cited species. Descriptive statistics were utilized.

Results. Anti-diarrheal plants most often produced tannins, absorbent carbohydrates, and astringents. Other plants were known to have antispasmodic, antimicrobial, anti-inflammatory, or anti-cholinergic chemical properties. Several plant species were of economic and medicinal interest for their antihelminthic, antiviral, or antibacterial properties.

Conclusion. The preliminary data will be used in future laboratory investigations to determine antibiotic mechanisms of anti-diarrheal plants.

Keywords: astringents, tannins, antimicrobial, antispasmodic, Diarrhea

Selected References

1. World Health Organization (WHO) and the United Nation's Children's Fund (UNICEF). 2004. Clinical Management of Acute Diarrhoea. WHO/FCH/CAH/04.7. World Health Organization, Geneva.

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