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# Diversity and perceptions about side effects of medicinal plants used by herbalists to treat gastrointestinal diseases in Sironko District, Eastern Uganda

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## Abstract

**Background** The escalation of gastrointestinal tract (GIT) illnesses is now a major global threat, with countries like Uganda having a prevalence of over 31 %. Herbal medicines (HM) are widely used to treat GIT illnesses in many low-resource settings including Sironko District in Eastern Uganda, but their safety remains a grave concern because they often contain bioactive phytochemicals that may cause harmful side effects. In Sironko, herbalists commonly rely on indigenous knowledge rather than formal pharmacological training when prescribing HM hence the potential for adverse reactions linked to toxic phytocompounds is substantial, warranting comprehensive scientific investigation.

**Objective** To explore plant species used to treat GIT illnesses and perceptions of their adverse effects in Sironko District, to inform safer herbal medicine use.

**Methods** A sample of 70 herbalists was subjected to an ethnobotanical survey using pre-validated semi-structured questionnaires to profile plant species primarily used against GIT illnesses plus awareness and perceptions about the associated side effects. Data were analyzed with descriptive and inferential statistics using STATA version-15.0. Graphs were plotted with GraphPad Prism<sup>®</sup> version 9.0.0.

**Results** A total of 80 plants species used against GIT infections were documented, mainly in families; Asteraceae and Euphorbiaceae, indicated for treatment and prevention of 24 gastrointestinal illnesses, mostly diarrhea (18.94%), ulcers (11.81%), and stomachaches (8.52%), plus 39 ailments affecting other body systems. Informant consensus factors were high for all disease categories ( $\geq 0.630$ ), showing homogeneity of ethnomedicinal knowledge. *Chenopodium opulifolium*, *Tithonia diversifolia* and *Senna didymobotrya* were reported to pose the greatest number of side effects, including headache and insomnia. The 70% of participants were unaware that HM can be toxic, 57% were certain that HM do not have side effects, yet those that opposed the need for urgent action against HM adversity were significantly more than participants who perceived it as vital ( $\chi^2$ ,  $p < 0.0001$ ).

**Conclusion** There is a high diversity of plant species used to treat primarily GIT illnesses in Sironko, but many potentially stimulate life-threatening adverse effects such as severe headache and vomiting. These results highlight a need

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