Preparation of Decoction of Medicinal Plants: A Self-Help Measure?

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Dear Editor:

Ethnobotanical studies have shown use of decoction (hot aqueous extract) of local plants to be a preferred mode.^{1,2} In fact, preparation of plant-based remedies at the household level is often seen as a self-help measure. However, our recent field experiences with *Psidium guajava* (guava) leaf decoction (PGLD) as an antidiarrheal remedy revealed that preparation of a home-based remedy could be a limiting factor toward use of local medicinal plants. We had identified PGLD as an efficacious antidiarrheal plant through an ethnobotanical survey of Parinche valley, Pune, India³ followed by laboratory studies.⁴ Subsequent to the popularization of PGLD in the valley through community health workers (CHW), patients with diarrhea willing to share their experiences ($n=23$) were interviewed. A number of reasons for using and not using PGLD were identified (Box), most of which are similar to those reported elsewhere. These include dissatisfaction with other available treatments,^{5–7} recommendations from relatives or friends,⁵ financial constraints,^{8,9} and a pluralistic approach for faster and/or better cure.⁵ To the best of our knowledge, the preparation of a decoction restricting the use of local medicinal plants has not been reported. Hence, this parameter was analyzed in detail.

The CHW prepared PGLD on a kerosene stove and on a *chulha* (traditional earthen stove with wood as a fuel). Approximately 170 mL of kerosene was required to prepare PGLD for an adult per day, and time required was 38 minutes. The cost for preparing PGLD using kerosene for an adult for 5-day treatment, the recommended duration, was \$0.19–\$0.48 (\$0.04–0.09 per day), depending on whether it was purchased from government-subsidized (\$0.22 per liter) or privately owned (\$0.56 per liter) shops. On the other hand, the amount of wood for preparing PGLD for an adult/day was estimated to be approximately 514 g, and the time required was 1 hour 10 minutes. The cost of wood (if purchased) is \$0.09 per kg. Thus, the cost for preparing PGLD using wood for an adult for 5 days would be \$0.22 (\$0.04 per day). It is not feasible to prepare and store the decoction for 5 days since it is prone to bacterial and fungal contamination in the absence of adequate storage facilities such as refrigerator.

The average household income in the valley ranged between \$2.23 and \$6.68 per day. As a result, the preparation of decoction may cost up to 4% of the daily income, which is

BOX. REASONS FOR USING AND NOT USING *PSIDIUM GUAJAVA* LEAF DECOCTION (PGLD) BASED ON INTERVIEWS WITH PATIENTS WITH DIARRHEA

Reasons for using PGLD	Reasons for not using PGLD
Presence of <i>P. guajava</i> trees in immediate vicinity	Absence of <i>P. guajava</i> trees in immediate vicinity
Impact of dissemination programs	Taste of PGLD
Word of mouth: encouragement by good experiences of others	Lack of time
Faith in alternative medicine and willingness to spread information	Lack of faith in alternative medicines
Anticipation of a faster cure	Dependence on others for preparing the decoction
Treatment expenses/limited household income	Poor memory: failure to recollect the “recipe” for preparing the decoction
Time spent on traveling to government-run primary health center (PHC)	Problems encountered during preparation of the decoction including cost of fuel and time taken for its preparation
Inaccessibility of PHC	Accessibility of PHC

relatively high for people living under the poverty line. Hence, at times, subject to accessibility/availability of transport, going to a government-run primary health center (PHC) where treatment cost would be minimal (\$0.04 per case paper) would be preferred over spending the estimated amount for preparing PGLD. However, compared to the cost, the time taken for preparing PGLD (40–60 minutes) seems to be a greater concern. Other problems encountered during the preparation such as smoke, irritation of the eyes, constant stirring to avoid spillage, and need for arranging the wood in the *chulha* every 5–10 minutes further contribute to this.

Our observations have shown that preparation and use of plant decoctions at the household level can have several

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limitations. The standard procedure mentioned in *Ayurveda*¹⁰ for decoction preparation requires that the plant material be boiled until the original volume is reduced to one fourth. Alternate methods such as cold infusion, heating at lower temperature (e.g., 60°C), or chewing of plant material may be considered. However, if these methods are to be employed, they need to be tested before they are advocated, since any change in the recommended method of preparation may alter its efficacy and/or toxicity profile. A single-dose formulation prepared from standardized plant material can also be considered, but problems related to its distribution/availability in PHCs (as in the case of allopathic drugs) may be rewitnessed.

Acknowledgments

This work was supported by a grant from Indian Council of Medical Research (grant no. 59/10/2005/BMS/TRM). We thank all the CHWs (*Tais*) and other staff of Foundation for Research in Community Health for their efforts toward collection of information, and Ms. Seema Deodhar for her help in analyzing the data.

Disclosure Statement

No competing financial interests exist.

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