



Traditional herbal medicines as alternatives to antimicrobials in the livestock sector

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BACKGROUND

This technical brief is the outcome of the roundtable “Traditional herbal medicines as alternatives to antimicrobials to help reduce antimicrobial resistance in the livestock sector”, organized by the Livestock Antimicrobial Partnership (LAMP) Action Network of the Global Agenda for Sustainable Livestock (GASL) on 24 September 2025.¹ GASL is a multi-stakeholder partnership hosted by the Food and Agriculture Organization of the United Nations (FAO) and committed to advancing sustainable livestock development through dialogue, knowledge exchange and collective action. The roundtable brought together experts from international organizations, research institutions and civil society to discuss the potential role of traditional herbal medicines in reducing antimicrobial use and addressing antimicrobial resistance in the livestock sector. The presentations and subsequent roundtable discussions provided the foundation for this technical brief.

¹ Experts gather to address antimicrobial resistance in livestock sector: <https://www.fao.org/partnerships/livestock-dialogue/news-events/news/detail/experts-gather-to-address-antimicrobial-resistance-in-livestock-sector/en>

KEY MESSAGES

- Traditional herbal medicines (THMs) are generally culturally acceptable, locally available, affordable and safe.
- As THMs are extracts from plants they may contain several active chemical substances.
- THMs with anti-infective properties may be less likely to lose their efficiency due to antimicrobial resistance (AMR) because they may contain several active substances, some of which may have novel mechanisms of action.
- The potency and safety of THMs vary for multiple reasons, including variation in the concentration of active substance(s) in plants over time and across different geographical areas. Non-standardized preparation and production of the extracts may also contribute to variation in potency and safety.
- More resources are needed to thoroughly validate the efficiency, safety and production of THMs before they can be standardized and recommended for widespread international use in the battle against AMR.
- There is an opportunity to strengthen dialogue among practitioners and foster an extended exchange between traditional and contemporary medicine approaches across diverse stakeholders to support collective efforts in addressing AMR.

CAN OR SHOULD TRADITIONAL HERBAL MEDICINES BE STANDARDIZED AND REGULATED?

It is generally agreed that medicines should be safe for animals, human patients, health-care personnel and the environment. Health-care providers also have a moral responsibility to ensure that medicines are effective in preventing and treating the disease for which they are intended. Otherwise, their use may be considered misleading or fraudulent practice.

These requirements for safety and efficacy explain why our contemporary pharmaceuticals are subject to very rigorous scrutiny, evaluation and regulation before they are approved for use in health care and agricultural systems.

There are examples of THMs that have been validated for efficacy and safety at the local level. However, scaling up such validation for international use may be challenging because regulatory requirements differ among countries and contexts.

Systematic scrutiny, evaluation and regulation therefore remain challenges for THMs, not only because of the reasons mentioned above, but also because these procedures require substantial financial resources and technical competence. Another complex question concerns what should be regulated, related to the variability in potency and non-standardized production: the medicinal plants, the extracts, the final formula or the entire production chain.

THMs are generally considered safe because many have been used over long periods without reports of severe side effects. However, because the potency or concentration of active substances and other, potentially undesirable, substances may vary among herbal extracts, severe side-effects may still occur.

Firm and unbiased information on the efficacy of THMs remains limited. There are not many scientific reports on herbal extracts that exhibit antimicrobial activity in laboratories or under strict clinical conditions.

OPTIONS AND HURDLES FOR RECOMMENDING TRADITIONAL HERBAL MEDICINES AS ALTERNATIVES TO CONTEMPORARY ANTIMICROBIAL PHARMACEUTICALS

THM is attractive as potential alternative to contemporary antimicrobials and AMU. It may be less likely to drive resistance through mechanisms observed with contemporary antimicrobials, may be more accessible and affordable in some settings, and may provide locally produced alternatives within the animal health products market.

However, evidence on safety, efficacy and quality remains insufficient to support international use, standard-setting and regulation. Thus, while for the moment there are no official recommendations from international standard-setting bodies on the use of THMs as alternatives to contemporary antimicrobials, there is a rising interest in exploring this area further. Where supported by appropriate evidence and national regulations THMs may serve as first-tier supportive treatments to mitigate and alleviate disease symptoms, provided that their use does not delay or replace effective contemporary antimicrobial treatment when this is required.

In the search for new antimicrobial substances among THMs, more research and development efforts are needed.



A small-scale farming poultry producer in Argentina

At the same time, equitable benefit-sharing arrangements, for example under the Nagoya protocol, are crucial.

In addition, employing plants for THM must consider the risk of threatening local biodiversity. Plants for THM should therefore be sustainably harvested or cultivated.

Overall, there is significant potential for mutual learning and knowledge exchange between traditional and contemporary medicine approaches. By fostering dialogue and collaboration among practitioners, researchers, and other stakeholders, these complementary perspectives can contribute to more integrated and sustainable approaches to improving animal health, welfare, and productivity. Such collaboration should be guided by science-based evidence, respect for diverse knowledge systems, and responsible management of natural resources to ensure long-term benefits.

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