ABSTRACT

Through the normal wood stoves for cooking have been notoriously inefficient and slow. Electricity, gas or liquid fuels are preferred for cooking - when they can be obtained. In the last few decades a number of improvements have been made in woodstoves, but still the improved wood stoves are difficult to control and manufacture and are often not accepted by the cook. Gasification of wood (or other biomass) offers the possibility of cleaner, better controlled gas cooking for developing countries. In this paper we describe a wood-gas stove based on a new, simplified wood gasifier. It offers the advantages of "cooking with gas" while using a wide variety of biomass fuels. The stove operates using natural convection only. It achieves clean flame combustion and stabilizes the flame position. The emissions from the close coupled gasifier-burner are quite low and the stove can be operated indoors. Biomass constitutes the biggest source of energy in area of undeveloped country and some parts of developing country. However, its utilization in the domestic sector is mostly inefficient and polluting, resulting in resource wastage. Traditional cook stoves, predominantly used in the households for domestic cooking, have been a major contributor to these ill effects. Biomass gasification appears to have a significant potential in rural areas for domestic cooking applications. A number of gasification-based cooking systems, which are more efficient than traditional stoves and are almost smoke-free, have been developed and demonstrated recently to highlight the potential benefits of introducing them in developing countries.

KEY WORDS:

Simplified wood gasifier, domestic cooking stove, natural draft.