New biomass charcoal heater: A 'new era' of efficiency and sustainability

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This is the charcoal combustion heater Japanese scientists say will offer clean, more efficient home heating. Photo courtesy of Amit Suri

Millions of homes in rural areas of Far Eastern countries are heated by charcoal burned on small, hibachi-style portable grills. Scientists in Japan are now reporting development of an improved "biomass charcoal combustion heater" that they say could open a new era in sustainable and ultra-high efficiency home heating.

Their study was published in ACS' *Industrial & Engineering Chemistry Research*, a bi-weekly journal.

In the study, Amit Suri, Masayuki Horio and colleagues note that about 67 percent of Japan is covered with forests, with that biomass the nation's most abundant renewable energy source. Wider use of biomass could tap that sustainable source of fuel and by their calculations cut annual carbon dioxide emissions by 4.46 million tons.

Using waste biomass charcoal, their heater recorded a thermal efficiency of 60-81 percent, compared to an efficiency of 46-54 percent of current biomass stoves in Turkey and the U.S.

"The charcoal combustion heater developed in the present work, with its fast startup, high efficiency, and possible automated control, would open a new era of massive but small-scale biomass utilization for a sustainable society," the authors say.

More information: "Development of Biomass Charcoal Combustion Heater for Household Utilization," ACS' *Industrial & Engineering Chemistry Research*, pubs.acs.org/doi/pdf/10.1021/ie8006243 .

Source: American Chemical Society

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