Green Refrigerant Box

Putri, Anjani
Syafiq, Muhtaza

Day by day there is an increasing need of cooler to preserve food stuff and fruits in rural areas, Musi Banyuasin regency, South Sumatera. Commonly Refrigeration systems in society uses electricity and not environmentally. It becomes a problem, because of the limited power supply in rural areas. The alternative solution is using Green Rerigerant Box (GRB) by utilizing gelam wood as activated carbon adsobent and modified vacuum pump as a substitution of electricity. As the first step is designing and assembling GRB using clean cans, hose, copper and plastic box. Then it will be continued with working of system using 300 gram mass of activated carbon adsorbent and 100 ml, 300 ml, 400 ml volume of ethanol. The data show that for variation of 300 gram mass of activated carbon and 100 ml volume of ethanol produce decreasing of temperature until 6 degrees C for 4 hours 10 minutes pumping time. For Variation of 300 gram mass of activated carbon and 300 ml volume of ethanol produce decreasing of temperature until 5.5 degrees C for 2 hours 20 minutes pumping time. For variation of 300 gram mass of activated carbon and 400 ml volume of ethanol produce decreasing of temperature until 6 degrees C for 3 hours 10 minutes pumping time. So, the optimum parameter is using 300 gram mass of activated carbon adsorbent and 300 ml volume of ethanol. It could decrease the temperature until 5.5 degrees C from 28 degrees C (room temperature) for the shortest time of pumping time.

Awards Won:
Third Award of $1,000