

Adsorptive Properties of Activated Charcoal and Fullers Earth Used for Treatment of Paraquat Ingestion

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Objective: To study the binding capacity for paraquat of different brands of activated charcoal (AC) and compare it with that of Fuller's Earth (FE). **Methods:** 200mg of AC was mixed with 1ml 100mg/ml paraquat ion (Pq) for 30 minutes (revised method after Okonek, 1982). After centrifugation, triplicate aliquots of the supernatant were diluted and the paraquat concentration determined by UV spectroscopy at 260nm. **Results:** Previous work had shown that the maximum binding capacity of FE was approximately 8.4% of paraquat ion. In the present study the % Pq bound for different brands of AC was: Carbomix® (Norit) 11.6%; Fluka® (Philippines) 7.6%; Indian charcoal (Goa Medical Hospital) 6.4%; Thailand charcoal BP (Syngenta Thailand) 10.4%. Carbomix® appeared to be the best AC product for binding Pq, though all charcoals tested were similar to or better than Fuller's Earth. Products containing large amounts of sorbitol (eg Charcodote® from Korea, Antipois® from Vietnam) have also been evaluated and shown to be as effective as pure charcoal at binding paraquat. Having a fine particle size does not appear to be critical since a coarser coconut charcoal from Sri Lanka performed similarly to the very finely ground Carbomix® and also the granular Botanitown® from China showed up to 8% adsorption. **Conclusion:** Different brands of AC show different binding capacities for Pq; some of these show improved binding compared to the best FE. Since FE will no longer be available in future it is recommended that locally available AC is tested for its capacity to bind Pq before recommending its use in the treatment of paraquat poisoning. **Reference:** Okonek S, Setyadharma H, Borchent A, Krienke EG. Activated charcoal is as effective as Fullers Earth or bentonite in paraquat poisoning. *Klin Wochenschr* 1982; 60: 207210.