Research Article Open Acces

Keywords Eggshell; Banana peel; Pumpkin; Biosorbent

Introduction

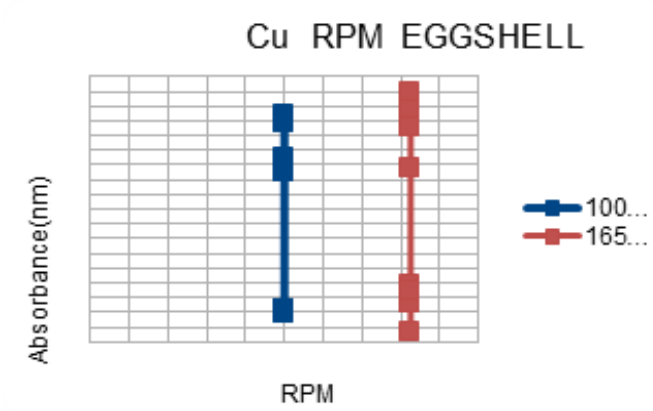
Now a day's various toxins are released into water leading to a great deal of water pollution. Many heavy metals from various industries like battery plants, metal processing industries, pharmaceuticals, hospitals, mining elds etc. are being released into the water bodies leading to unsafe water for normal consumption. e most common heavy metals found are copper and lead, which when present in high concentrations may be very fatal to the health and the surrounding environment as well [1]. In order to obtain clean and safe water it is required that these toxic chemicals and metals should be removed.

Many methods have been undertaken in the process to remove these unwanted contaminants such as physio-chemical methods, various biological methods and to large extent nano-based techniques [2]. e methods that we have employed are purely based on the aim to achieve environmental sustainability by using house hold waste such as eggshells, banana peels and pumpkin which are cheap, easily available and a very e ective adsorbent. Eggshells are a very reliable adsorbent due to its calcium carbonate content [2,3]. Moreover,there is no scope of any organic compounds dissolving in the solution like pumpkin powder , banana peel powder ,pomegranate powder leaving the solution colourless [4,5]. Banana peels have good adsorbent properties and may be a successful method in puri cation of water due to the compounds in the banana peels that contain atoms of nitrogen, sulfur and organic compounds such as carboxylic acids. ese acids are charged such that their negatively charged electron pairs are exposed, meaning they can bind with metals in the water that usually have a positive charge [5,6]. Pumpkins also have good adsorbent properties due to the lignocellulosic compounds in the organic matter that contain functional groups like carboxyl, hydroxyl, ester, etc. A large number of

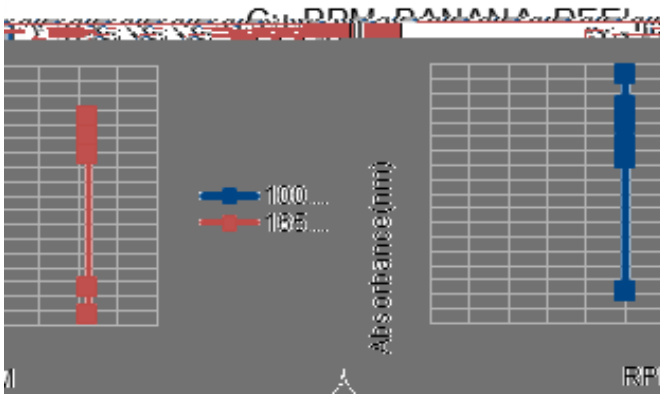
Citation:

Concentration	pH	Absorbance		

(a)



(b)



(c)

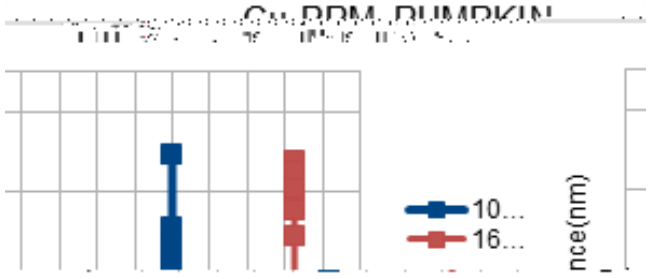
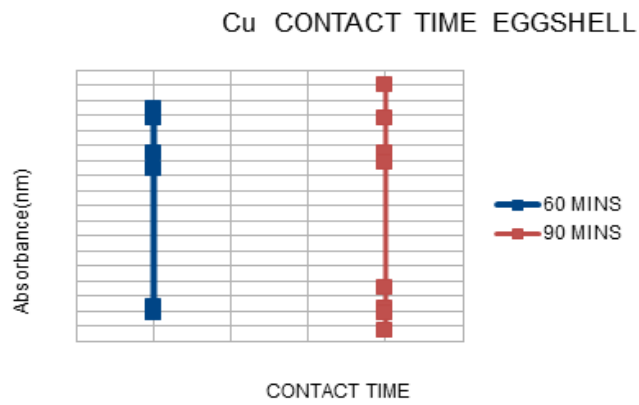
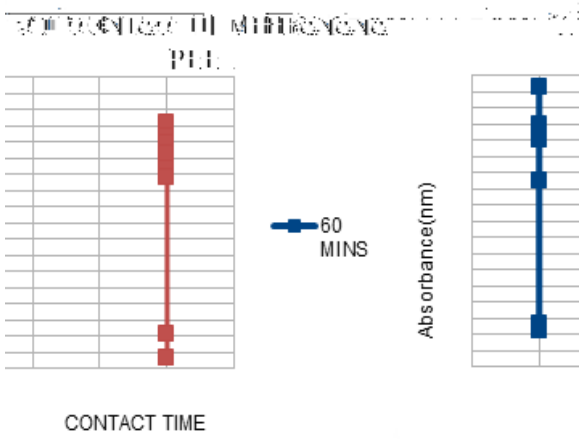


Figure 2: Graphs with regard to RPM Cu.

(a)



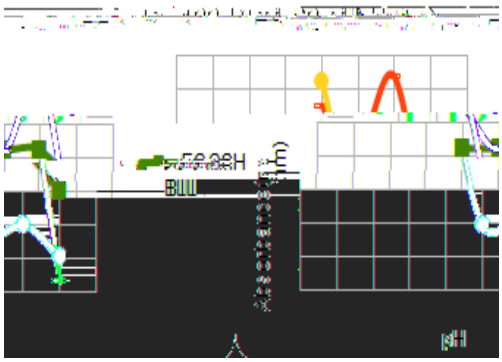
(b)



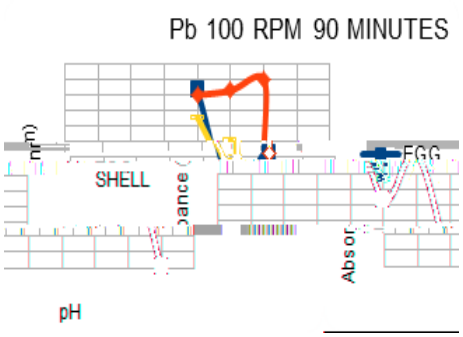
(c)

Figure 3: Graphs with regard to contact time Cu.

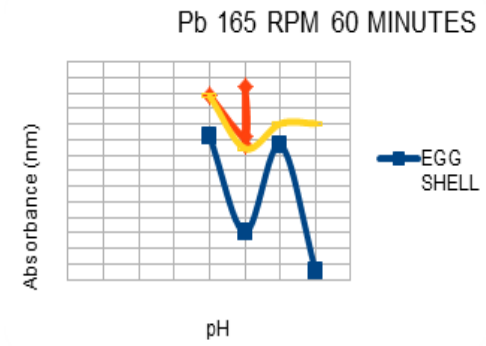
(a)



(b)


Pb 100 RPM 90 MINUTES
SHELL
EGG
pH

(c)


Pb 165 RPM 60 MINUTES
Absorbance (nm)
EGG
SHELL
pH

(d)

Citation: Kanyal M, Bhatt AA (2015) Removal of Heavy Metals from Water (Cu and Pb) Using Household Waste as an Adsorbent. J Bioremed Biodeg 6: 269. doi: