

Figure 3. FTIR spectrum before acid modification

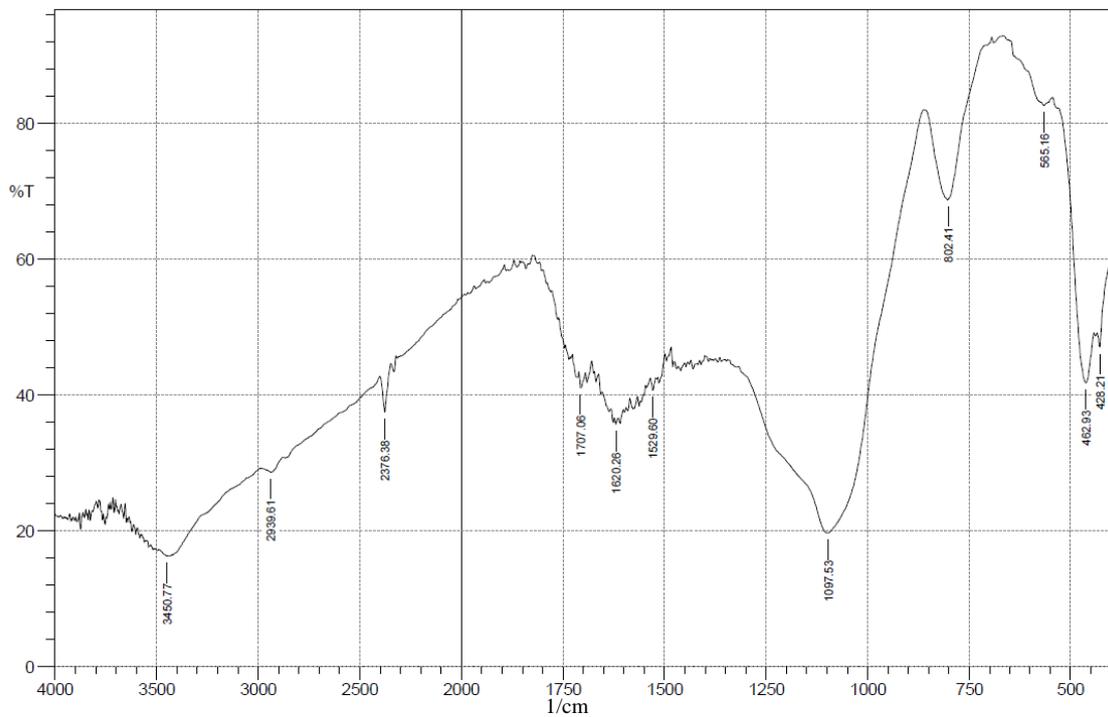


Figure 4. FTIR spectrum after acid modification

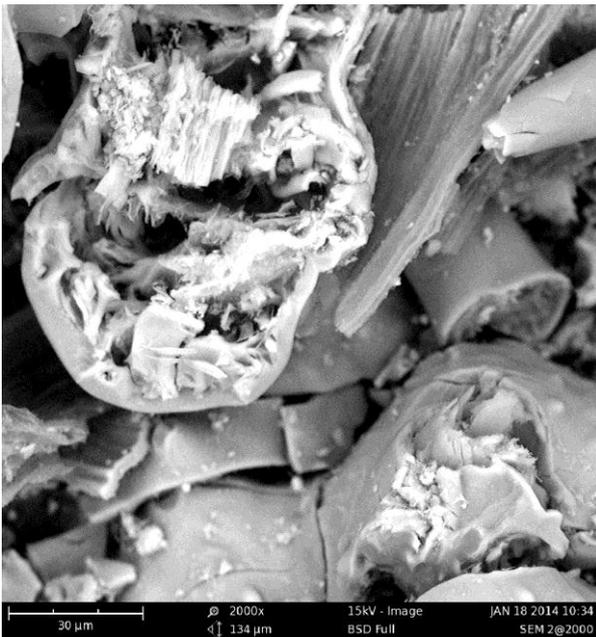


Figure 5. SEM Micrograph before acid modification



Figure 6. SEM Micrograph after acid modification

TABLE 1. Surface Area and Pore Size before and after Phosphoric Acid Modification

Sample	S_L (m^2/g)	S_{BET1} (m^2/g)	S_{BET2} (m^2/g)	V_{mic} (cm^3/g)	D_p (nm)
Before acid modification	12.47	9.553	9.071	0.0052	2.48
After acid modification	102.4	64.7	66.13	0.034	1.82

CONCLUSION

In conclusion, the BET analysis shows that modification of the charred residue with phosphoric acid enhanced the surface area of the activated carbon from 12.47 to 102.4 m^2/g . The average pore diameter was also enhanced from 2.4 to 1.82 nm. It also shows improvement in micropore volume from 0.0052 to 0.034 cm^3/g . SEM analysis confirmed the improvement in surface area and pore development resulting from the phosphoric acid modification while FTIR analysis revealed the existence of phosphorous-oxy-containing functional groups on the surface of the phosphoric acid modified activated carbon. Therefore, modification of thermally pretreated rice husk with phosphoric acid has been noted to result in significant changes in the characteristics of the activated carbon which in turn governs its performance in various areas of application such as wastewater treatment.

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