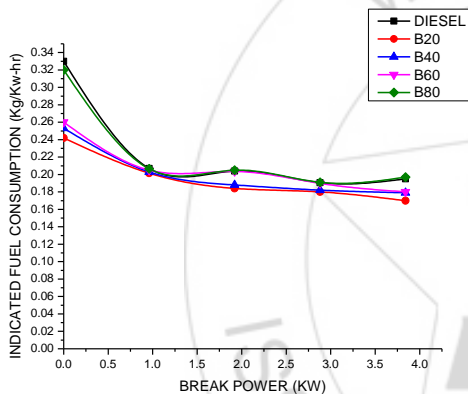


Graph 4: Brake power Vs Volumetric efficiency

Indicated Specific Fuel Consumption

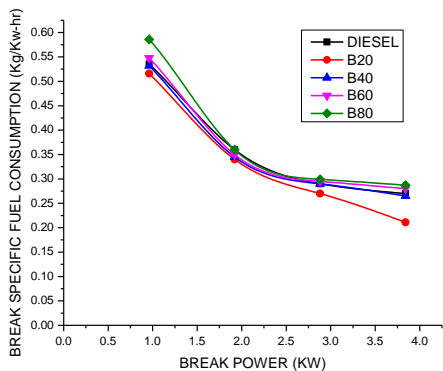
The variation of indicated specific fuel consumption with brake power is shown in graph5. The plot it is reveals that as the brake power increases indicated specific fuel consumption decreases. The indicated specific fuel consumption of Ankola oil blend B20 slightly decreased when compared to the diesel at full brake power condition.



Graph 5: Brake power Vs Indicated specific fuel consumption

Brake Specific Fuel Consumption:

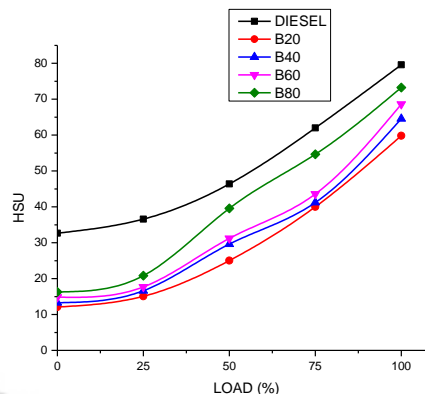
The variation of brake specific fuel consumption with brake power is shown in graph6. The plot it is reveals that as the brake power increases brake specific fuel consumption decreases. The brake specific fuel consumption of Ankola oil blend B20 slightly decreased when compared to the diesel at full brake power condition.



Graph 6: Brake power Vs Brake specific fuel consumption

Smoke Density (H.S.U)

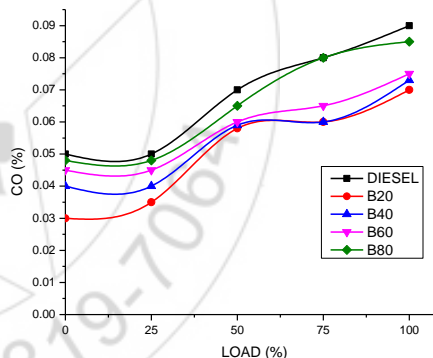
The variation of smoke density with load is shown in graph7. The plot it is reveals that as the load increases smoke density decreases. The smoke density of Ankola oil blend B20 slightly decreased when compared to the diesel at full load condition.



Graph 7: Load Vs Smoke Density(HSU)

Carbon Monoxide (CO)

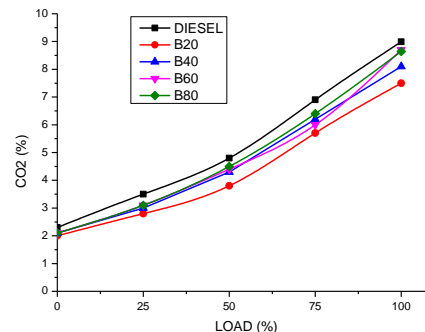
The variation of carbon monoxide with load is shown in graph8. The plot it is reveals that as the load increases carbon monoxide decreases. The carbon monoxide of Ankola oil blend B20 slightly decreased when compared to the diesel at full load condition.



Graph 8: Load Vs CO

Carbon Dioxide (CO2):-

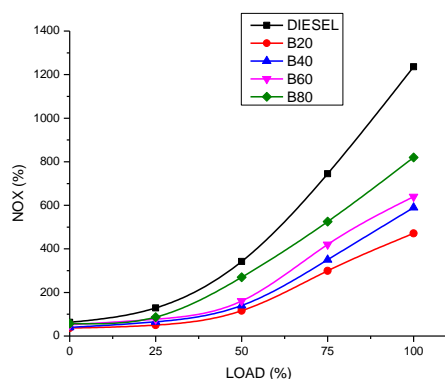
The variation of carbon dioxide with load is shown in figure. The plot it is reveals that as the load increases carbon dioxide decreases. The carbon dioxide of Ankola oil blend B20 slightly decreased when compared to the diesel at full load condition.



Graph 10: Load Vs CO2

Nitrogen Oxide (NOx):

The variation of NO_x with load is shown in graph 11. The plot it reveals that as the load increases NO_x decreases. The NO_x of Ankola oil blend B20 slightly decreased when compared to the diesel at full load condition.



Graph 11: Load Vs NOx

8. Conclusion

- The experiments are conducted on the four stroke single cylinder water cooled diesel engine at constant speed (1500rpm) with varying 0% to 100% loads with diesel and different blends of Ankola oil like B10, B20, B30 and B40.
- The performance parameters such as η_{MECH} , η_{BTE} , η_{ITE} , η_{VOL} , BSFC and ISFC were calculated from the observed parameters and shown in the graphs.
- The emissions characteristics such as carbon monoxide(CO), hydro carbons(HC), carbon dioxide(CO₂), oxygen(O₂), nitrogen oxide (NO_x), smoke density(H.S.U) are also decreased, will compared to diesel and other blends.
- It is observed that having 20% Ankola oil blend with diesel CI engine gives energetic results for as performance parameters.
- And emissions characteristics also decreases will compared to diesel at 20% Ankola oil blend with diesel.

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