In vitro functional assessment of bioartificial liver system using encapsulated hepatocyte spheroids in plasma

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The hepatocytes spheroids were encapsulated in chitosan-alginate capsule and packed in the bioreactor of BAL system for the plasma adaptation. Encapsulated rat hepatocyte spheroids culture with or without supplemented pig plasma showed a rapid decrease in the viability of 57 and 40% after 24 h of operation, respectively. The ammonia removal values of encapsulated rat hepatocyte spheroids culture with or without supplemented pig plasma were 30.92 $\mu g/10^6$cells and 9.04 $\mu g/10^6$cells after 24 h of operation. The urea secretion values of encapsulated rat hepatocyte spheroids cultured with or without supplemented pig plasma were 76.73 $\mu g/10^6$cells and 18.80 $\mu g/10^6$cells after 24 h of operation, respectively. It can be concluded that encapsulated hepatocyte spheroids in chitosan-alginate operated with packed-bed bioreactor in trace elements supplemented plasma showed a potential as a bioartificial liver.

References

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