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Raman spectroscopic study of amoxicillin, naproxen, kelvin, sinex, buscopan and chembrufen

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Vibrational spectroscopy is an excellent method for identifying substances because it provides fingerprint spectra that are unique to each specific compound. Of the various vibrational spectroscopies available, Raman spectroscopy should be the method of first choice because the spectra it produces are rich in information and because it needs virtually no sample preparation. This makes it ideal for the analysis of tablets, powders and liquids, thus avoiding mechanical changes during sample preparation, which could alter the physicochemical properties of the formulation. The prevalence of counterfeit drugs is seen as a problem faced in both developed and developing countries where Nepal is not an exception. Antibiotics are amongst the most counterfeit drugs in developing countries. What is less understood is that there are inadequate and ineffective quality control procedures in monitoring of drugs manufactured and imported into the country. This research work is aimed at contributing towards the development of routine analytical procedures that will facilitate

distinguishing between fake and genuine drugs. This was accomplished by elaborating the operation procedures for the analysis of specific antibiotic drug using Raman spectroscopy. Various brands of drugs samples (Amoxicillin, Naproxen, Kelvin, Sinex, Buscopan and Chembrufen) consisting of imported and the National product drugs purchased from a licensed pharmacy shop in Kathmandu were used for analysis. The authenticity of the drugs was analysed using EnSpectr Raport instrument. Various peaks are obtained in between the range of 100-3800 cm^{-1} and the major peaks are in the range of 800-1700 cm^{-1} . These peaks are obtained due to presence of specific functional groups of the drugs. These functional groups are also known as Raman active group and they show the characteristic peaks on the Raman Spectra. The major peaks coincide with the standard Raman peaks and hence we can conclude that these drugs found in Nepal and other countries must have similar Raman peaks if the chemical composition is same.

Biography

Hari Adhikari is currently studying MSc in Physics at Tribhuvan University, Nepal.

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