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Beetroot (*Beta vulgaris*) herbal alternative to synthetic acid base indicator use in titrimetric analysis

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In acid-base titrations, indicators are used to show a sharp color change at interval of pH. Natural pigments in plants are highly colored substances and may show color changes with variations of pH. Most of these indicators are organic dyes and are of synthetic origin. But due to environmental pollution, availability and cost, the search for natural compounds as an acid-base indicator was started. In the present study, the indicator activity of ethanolic and acidified ethanolic extract of *Beta vulgaris* was used to replace the synthetic indicators due to the disadvantage of less availability and high cost of synthetic dye. Ethanolic and acidified ethanolic extract of *Beta vulgaris* gives sharp and intense color changes as compared to phenolphthalein, methyl red and methyl orange. The above extracts were evaluated by using strong acid-strong base, strong acid-weak base, weak acid-strong base and weak acid-weak base. In all these titrations, the extract was found to be very useful and accurate for indicating the neutralization point. These natural indicators are found to be a very useful, economical, simple and accurate for the said titration. The extract was found to be more significant over standard indicator as it gives sharp color change at equivalence point as results obtained showed that the routinely used indicators could be replaced successfully by ethanolic and acidified ethanolic extract of *Beta vulgaris* as they are simple, accurate, economical and precise and can be prepared just before experiment. The proposed herbal indicators can be used as a substitute to synthetic indicators.

Biography

P. V. Powar has completed M. Pharm from KLE College of Pharmacy, Belgaum under Rajiv Gandhi Health Science University, Bangalore, with distinction. She also has 1 year industrial experience in Quality Control department. She is working as assistant Professor at Padmashree Dr. D. Y. Patil College of Pharmacy, Pune. She has published 3 papers in reputed journals and also participated in poster presentations in different conferences.