TEAB a Versatile, Volatile Buffer for Biological Applications

In the biochemical lab, there is the need to use a variety of buffers for chemical/biological reactions and for purification purposes. One of the problems is buffer incompatibility, therefore, in many situations it is very desirable to have a solvent that does not interfere with subsequent steps, therefore, a volatile solvent is ideal. One of the few known volatile solvent is Triethyl Ammonium Bicarbonate (TEAB)

Preparation of 1 M TEAB buffer:

1. Fill a 2 liter Erlenmeyer flask, with 3-4 pounds of crushed dry ice (solid carbon dioxide), cover the flask and connect a tygon tubing from the side arm
2. In a separate 2 liter flask, place a 1 M aqueous solution of triethylamine
3. Place the end of the tygon tubing into the bottom of the flask containing the aqueous TEA, and observe the bubbling of gaseous CO2 into it
4. Bubble CO2 for about 3-4 hours or until the pH of the aqueous TEA reaches pH 8.5
5. Store in a screw cap bottle and keep at 4 degrees Celsius

Removal of TEAB buffer: The buffer can easily and conveniently be removed by simple lyophilization or by using a speed vac.

Oligonucleotide Isolation: One useful application of TEAB is for eluting crushed PAGE gel from a DE-52 bed; generally 3x1 ml aliquots are applied to extract the oligo bound to the DE-52 bed. The TEAB is evaporated off by speed vac, and then the oligo can be quantitated by uv spectrometry.

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