Urine Protein Sulfosalicylic Acid Precipitation Test (SSA)

Principle: Three percent (3%) Sulfosalicylic Acid (SSA reagent) is added to a small and equal volume of clear urine. The acidification causes precipitation of protein in the sample (seen as increasing turbidity), which is subjectively graded as trace, 1+, 2+, 3+ or 4+.

Overview: Unlike the routine urine protein chemistry dipstick pad, the SSA reaction will detect globulin and Bence-Jones proteins, in addition to albumin (although it is more sensitive to albumin).
In alkaline urine, the SSA reaction is a more accurate measure of urine protein content than the dipstick.
The most accurate measurement of urine protein output continues to be the 24 hour urine protein usually performed by the Clinical Chemistry department of the clinical laboratory. Another good alternative to this test is the urine protein to creatinine ratio.

False positives:

X-ray contrast media
High concentration of antibiotics, such as penicillin and cephalosporin derivatives
SSA test should always be performed on urine supernatant. Unless the urine sample is clear, the test must be performed on centrifuged urine. Best practice is to always used supernatant from a properly spun urine sample.

False negatives:

Highly buffered alkaline urine. (The urine may require acidification to a pH of 7.0 before performing the SSA test.)
Dilute urine
Turbid urine - may mask a positive reaction. Again, best practice is to always used supernatant from a properly spun urine sample.

Procedure:

1. Into a clear glass or plastic test-tube pour a small amount of urine supernatant Depending on the size of tube used, @ ½ - 1 mL urine will be required (the width of the tip of your little finger should do it.)
2. Squirt an equal amount of 3% SSA (kept in the small bottles) into the tube directly on top of the urine.
3. Shake tube gently with a quick flick and read for turbidity immediately.