COMPARISON OF COLORIMETRIC METHODS DEVELOPED FOR THE DETERMINATION OF AMLODIPINE

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Amlodipine is an antihypertensive agent, which belongs to the group of calcium channel-blockers. It possesses a primary amine group on the side-chain attached to the dihydropyridine ring. Colorimetric assay methods based on the reaction of the amine group with trinitrobenzene sulphonic acid (TNBS), chloranil (TCQ) and sodium naptoquinone suphonate (NQS) were developed.

The effect of parameters such as temperature, heating time, pH, volume of reagents added on color development were investigated.

TNBS gives with amiodipine a colored adduct. Optimal results were obtained at room temperature in 20 min (pH=10). The calibration equation for 5-25 μg/ml amiodipine besylate (AB) is y = 0.003x + 0.008 (r = 0.9999). The colored adduct is stable for 15 min.

TCQ gives with amiodipine a colored charge-transfer complexe. Optimal results were obtained, if the reaction mixture was heated at 55° for 10 min (pH=9). The calibration equation for 5-25 μg/ml amiodipine besylate (AB) is y = 0.038x - 0.006 (r = 0.9992). The colored complexe is stable for 60 min.

NQS gives with amiodipine a colored adduct. Optimal results were obtained, if the reaction mixture was heated at 65° for 10 min (pH=9). The calibration equation for 25-125 μg/ml (AB) is y = 0.007x - 0.019 (r = 0.9993). The colored complexe is stable for 30 min.

The statistical evaluation of the data obtained shows that the differences between the colorimetric methods developed and a direct UV method are not significant at p=0.05.