

l'application de ses résultats pour la solution de quelques problèmes matériels de l'homme.

La distinction de la chimie organique en pure et appliquée, n'a essentiellement qu'un sens éducatif. D'après la conception admise ici, la chimie organique pure (ou chimie du carbone) n'est qu'une méthode chimique auxiliaire de la chimie organique appliquée. C'est cette dernière qui est la raison d'être de la chimie organique. Par suite, la valeur des théories des composés organiques dépend, essentiellement, de leur efficacité à l'accomplissement de leur rôle.

En résumé, j'ai essayé dans cette Note d'esquisser quelques traits essentiels de l'esprit de la méthode concernant la réduction de la forme de la Conscience totale en forme de la Conscience

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des activités du chimiste organicien. C'est dans ce climat que sera développée dans des Notes ultérieures l'étude systématique des théories de la chimie organique.

Π Ε Ρ Ι Λ Η Ψ Ι Σ

Γενικά παρατηρήσεις επί των θεωριών της συντάξεως των οργανικών ενώσεων εκ της χημικής κοινωτικής συμπεριφοράς αυτών. I. Εισαγωγή

Υπό ΠΑΝΟΥ ΓΡΑΜΜΑΤΙΚΑΚΗ

Ἐκθέσις μερικῶν σημείων μεταχημικῆς φύσεως ἀναφερομένων εἰς τὴν ἀναγωγὴν τῆς μορφῆς τῆς κοινωτικῆς συνειδήσεως εἰς τὴν μορφήν τῆς συνειδήσεως τῆς δράσεως τοῦ Ὄργανικοῦ Χημικοῦ.

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Preparation of colloidal gold

By E. C. STATHIS and A. FABRIKANOS

This paper describes a method for the preparation of stable gold sols, which contain no stabilising colloidal additives. The solution of the gold sol prepared by the present method can be employed as reagent in biochemical analysis.

It has been reported in previous papers (1,2) that when a solution of gold chloride is treated with ascorbic acid, a red sol of colloidal gold will be produced. The reaction has been applied to the detection and estimation of gold.

Although the preparation of colloidal gold is mentioned in most text books and many reducing agents have been used for this purpose, it is difficult to prepare, with no special precautions, stable gold sols, which do not contain some stable colloidal as stabilizing agent.

In attempting to find a simple method for the preparation of stable gold sols, which could be employed as reagents for the *colloidal gold test* in the liver diseases, the reduction of gold solutions by ascorbic acid has been studied. This paper describes a method for the preparation of stable gold sols which contain no stabilising colloidal additives.

Aqueous solutions of chloroauric acid ($\text{HAuCl}_4 \cdot 4\text{H}_2\text{O}$) 1% and of ascorbic acid ($\text{C}_6\text{H}_8\text{O}_6$) 0.07% were employed to study the conditions under which sols can be prepared.

The solutions were made up in common distilled water and no special care (as for example

steaming) was taken for the glass beakers and flasks.

Various portions of chloroauric acid solution were pipetted, diluted with distilled water and the reduction was carried out at room temperature by ascorbic acid. The reduction proceeds with the formation of coloured sols.

Preliminary experiments showed that variations in the hydrogen-ion concentration of the chloroauric acid solution accounted for the differences of the produced colour. pH measurements of the chloroauric acid solution were therefore made and the influence of potassium carbonate (N/5 solution) was tested.

In the vicinity of pH 7 red sols are formed and the resulting solutions are perfectly clear.

Measurements of light absorbed by gold sols, in relation to the time, by means of the Spekker photoelectric absorptiometer, showed the dependence of the stability upon hydrogen-ion concentration. The graphic representation is shown in fig. 1.

In accordance with the graphs, gold sols formed between pH 2 and 5.5 are unstable. The most stable sols are formed near the neutral po-

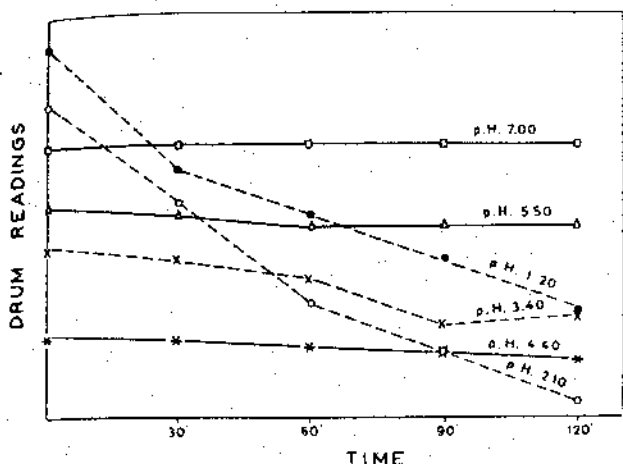


Fig. 1. Measurements of light absorbed by gold sols, in relation to the time.

int and are those which are most rapidly reduced.

The investigation of the reaction and the study of the conditions under which gold sols are formed, led to the procedures given below.

a) *Gold sol 0,005%*. (Reagent for the colloidal gold test in the liver diseases). To 1 ml of chloroauric acid solution (0,005 gr. Au) in a 100 ml volumetric flask, 25 ml of distilled water were added followed by 1,5 ml. of N/5 potassium carbonate. To the resulting solution, 10 ml of ascorbic acid (0,07%) were added with constant stirring. The volume was made up to 100 ml with distilled water.

b) *Gold sol 0,025%*. 5 ml of chloroauric acid solution (0,025 gr. Au) in 100 ml volumetric flask were neutralized with 5 ml N/5 potassium carbonate and diluted with water. To the resulting solution 5 ml of ascorbic acid (0,7%) were added with constant stirring. The volume was made up to 100 ml with distiller water.

(Chemistry Department, Athens University, Athens, Greece).

The pH of the red sols obtained by procedures (a) and (b) is 6,80 and 6,70 respectively.

The red sols with low concentration remained stable for six months, whereas those with high concentration remained stable for one week only. By addition of gelatin the red sols with high concentration were stabilized.

The sensitivity of the reagent, in the liver diseases, has been tested by Dr. M. Kavanozis.

Complete details of the above work together with the method of preparation of colloidal solutions for other elements will be published shortly.

Π Ε Ρ Ι Α Η Ψ Ι Σ

Παρασκευή Κολοειδούς Χρυσού

Υπό Ε. Κ. ΣΤΑΘΗ και Α. ΦΑΜΠΡΙΚΑΝΟΥ

Καίτοι ό σχηματισμός κολοειδούς χρυσού δι' αναγωγικών μέσων αναφέρεται εις πλείστα συγγράμματα, έν τούτοις ή παρασκευή κολοειδών διαλυμάτων χρυσού άνευ παρουσίας προστατευτικού κολοειδούς παρουσιάζει πολλές δυσκολίας.

Εις προσπάθειάν μας όπως επιτύχομεν δι' άπλης μεθόδου σταθερά διαλύματα κολοειδούς χρυσού, άτινα να δύνανται να χρησιμοποιηθώσι ως αντιδραστήρια εις βιοχημικάς αναλύσεις, έμελετήθη ή αναγωγή διαλυμάτων χρυσού δι' άσκορβικού όξέος.

Διά της παρούσης ανακοινώσεως προτείνεται νέα μέθοδος παρασκευής σταθερών κολοειδών διαλυμάτων χρυσού άνευ προσθήκης προστατευτικών κολοειδών.

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