sium showed no difference in results for the 2 auricles. The average for calcium was 0.3 mg. per gram of tissue for the right auricle and 0.28 mg. for the left auricle. The average for potassium was 2.8 mg. for the right auricle and 2.71 mg. for the left.

Tests for nitrogen and sulphur (lead acetate reaction) were negative, as also were Nylander's test, Bial's test, Tollen's test, and the reduction of picric to picramic acid. Fehling's solution and the Shaffer-Hartman test showed slight reduction, equal in the 2 extracts. Both extracts reduced methylene blue and gave a positive test to the Molisch reaction.

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Antigenic Structure of Certain Chlorellas and Allied Forms.

T. D. BECKWITH.

From the Department of Bacteriology, University of California, Berkeley, and Laboratory of Bacteriology, University of California at Los Angeles.

A series of tests has been conducted in an endeavor to determine whether there is an antigenic protein fraction common to a number of related unicellular algae. The following forms have long been held in culture within our collection: *Chlorella variegata, Chodat; Chlorococcus humicola (Naeg) Rabenhorst; Mannochloris bacillaris, Neumann; Chlorella viscosa, Chodat; Chlorella vulgaris, Beij, var. genevensis, Chodat; Chlorella rubescens, Chodat; Chlorella luteo-viridis, Chodat.* In addition there was available another undetermined species of *Chlorella.*

Each one of the algal forms included in this list was grown upon an agar medium of the following composition: Magnesium sulphate, 0.25 gm.; calcium nitrate, 1.0 gm.; monobasic potassium phosphate, 0.25 gm.; potassium chloride, 0.12 gm.; ferric chloride, trace; distilled water, 1000 cc. This solution was now diluted threefold with distilled water and to it in turn was added 1½% agar. After sterilization, the forms were grown upon slants of the medium. Incubation proceeded in diffuse daylight at room temperature over a period of 3 weeks. The resulting growth of each organism was suspended in sterile physiological saline and then with no further treatment each antigen was injected into the posterior aural vein of a rabbit. No signs of toxicity appeared in any one of the animals as the result of this treatment. Immunization progressed by means

of 9 injections extending over a period of 18 days. The amount of suspension introduced commenced with 0.25 cc. and the last 5 were each of 1 cc. amounts. There was no evidence of anaphylaxis during the period of this sequence of injections. Trial bleedings made during the latter part of this immunizing treatment showed the presence of agglutinins and the usual titre computed by 2 hours incubation at 37°C. followed by storage at ice box temperature was 1:320 with complete clearing of the tubes.

When immunization had progressed to the desired point, the animals were exsanguinated, the serum was separated by centrifugalization following defibrinization and the resulting preparations were then stored without addition of preservative until used. Usual titrametric methods were followed in setting up the agglutination series and 2 controls were added. These checks consisted of the antigen suspended in physiological saline and of the antigen placed in contact with 1:25 normal rabbit serum.

These experiments dealing with agglutinin mobilization showed that each antigen was clumped by its own homologous antiserum. No cross agglutination whatever appeared. Thus each antigen was agglutinated by its homologous antiserum and by no other. It was thus demonstrated that the protein content of these unicellular algae is antigenic. There is much complexity in the antigenic structure of these forms however for there is no antigenic fraction which is common to the entire series of genera and species.

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Quantitative Character of Coccidian Infection in Recipients of Blood from Immunized Animals.*

E. R. BECKER AND P. R. HALL.

From the Iowa State College.

The writers have shown[1] that rats may be immunized to the coccidium *Eimeria miyairii* by feeding each day for 5 days or less standard doses of sporulated oocysts. Other workers have demon-

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[1] Becker, E. R., Hall, P. R., and Hager, A., *Iowa State College J. Science*, 1932, **6**, 299.