

The Fungi: The Expert of Carbon Cycle Balance

summary

Decomposition of organic matters by **fungi**, an indispensable part of carbon cycle, can make carbon reused in the environment. A recent article explores the impact of different traits on its decomposition efficiency. In this paper, we focus on two main traits, hyphal extension rate and moisture tolerance, together with **interactions** among fungi and various environmental conditions, to simulate the breakdown of woody fibers and comprehend the importance of **biodiversity**.

Our **GAME** model is made up of the initials of four task names. Before we start our experiments, we build up a prediction model to simulate the cross action among different fungi and their effect on the decomposition process of woody fibers. We adopt Gause's Competitive Model to uncover the interactions among species and derive a differential system by considering the change of woody fibers amount. The model describes growth, hyphal extension, competition, and decomposition of fungi.

Firstly, in order to simplify the model, we fix temperature $T = 22^{\circ}\text{C}$, and set the trait parameters of three different fungi artificially. Experiment results shown that our model is of high reasonability since the predicted decomposition rate is nearly 30%, which approximately equals to verified research results. **keyword:**Decomposition Rate, Multi-environment, Gause's Model

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1 Introduction

1.1 Background

Example: The main task of the repeater is to amplify the received signal and transmit it further forward [1, 2]. As repeaters can be added to the radio network to improve the overall coverage and capacity of the system[3], they have played a significant role in high frequency radio spectrum propagation[1]. However, repeater location has less flexibility due to infrastructural, environmental, and governmental issues and rules.

1. Applying CTCSS technology, the interferences are canceled
2. Deploying the minimum number of repeaters
3. Accommodating enough simultaneous users

1.2 Our work

kdfsdhfoidshfdsffffffffsadddddddffs dfghdfsgdfgdfgdhasukfh sahdfkhskjfhkhdsf rgregstretwerts-dfjagdktretgeraerfds

Task1 ryryryfgdg
sgdsg

Task2 ryryry
sgrdrsd

Task3 ryryry
fdfgasdfasdffaeawfeasf

1.3 Data Pre-processing

erewafsdfeadf fwefdds fsfs dase ds aef efsd e fads feaf sadf e df sdf efasd gae asdga sefd sdgea fd gs gs rg rg rd rgds frs dfg rsdf 1.

Table 1: 111

fasf	dsfae	efea	efaf
212	fsdf1	efsfd	dfd
32	2434	efs	fsf

2 Assumptions

We make the following assumptions to complete our model through this paper. Furthermore, improvements of these simplified assumptions will be achieved later.

- First item
- Second item
- Third item

3 Notations

Add your text here. We use the . . . in Table 2.

Table 2: Three Line Table

A	B	C
AAAAAAAAAA	B	C
A	B	C

4 Data Processing

In statistics, the lack of data is very common in the dataset and may cause certain bias in the conclusion. Therefore, data imputation is necessary to eliminate such bias and obtain more concrete results. Through preliminary observation on the dataset, we find that some are missing and garbled data, which has an important impact on the analysis of the problem. Therefore, we first distinguish the anomalous information from the database and then process the missing data. We use the method of deleting by list to do data interpolation.

$$a^2 + b^2 = c^2 \quad (1)$$

$$r = density * \pi * g^2 \quad (2)$$

5 Model I: XXXXX

5.1 Description of XXXX

The interaction between influencers and followers is like the relationship between individuals in social networks, so we build a network of musicians' mutual influence based on existing social network analysis. Before constructing the model, let us introduce some definitions and concepts that will be used in this paper.

A network or graph is a set of nodes (also called vertices) connected via links (also called edges). Networks connected by directed links are called directed networks while networks connected by

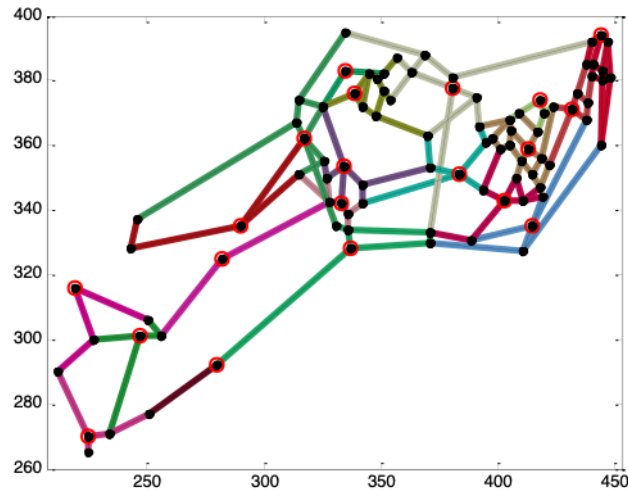


Figure 1: Title of picture

undirected edges are called undirected networks[1]. In order to take a decision about the network structure we have measured the following graph parameters.

Degree: The degree k of a vertex i is the number of connections of that vertex and is the average of over all the vertices of the network. Average shortest path: Two vertices and are connected if one can go from to following the edges in the graph. The path from to may not be unique. The minimum path distance or geodesic path is the shortest path distance from to . The average shortest path over every pair of vertices is

$$f(x) = \frac{\sin x}{1 + \cos x}, \quad (3)$$

where x is number. For an equation without reference, no tag is needed, as

$$F(X) = \int_a^b g(x) dx.$$

5.2 XXX model

e.g. Genre influence model based on cosine similarity Add your text here.

5.3 XXX Results

Add your text here.

6 Model II: XXXXX

Add your text here.

7 Model Analysis

7.1 Sensitivity Analysis

7.1.1 XXXX

Add your text here.

7.1.2 XXXX

Add your text here.

7.2 Strengths and Weaknesses

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8 Conclusions

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References

- [1] Aglika Gyaourova, Chandrika Kamath, and Imola K Fodor. Undecimated wavelet transforms for image de-noising. Technical report, abadc dadf fas c adf, 2002.
- [2] Lixin Ma and Yong Zhang. Research on vehicle license plate recognition technology based on deep convolutional neural networks. *Microprocessors and Microsystems*, 82, apr 2021.
- [3] DR. V.V.K.D.V. PRASAD and KOTESWARA RAO M. Decimated and Undecimated Wavelet Transforms Based Estimation of Images. *International Journal of Innovative Research in Science, Engineering and Technology*, 03(10):16981–16988, oct 2014.

APPENDIX

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A Source code

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B Source code for Model X

Put source code here.