

attention was paid to maintaining accurate breeding records on the farm. With the help of new developments, it can be concluded that the degree of inbred can stabilize the hereditary potential of Karakul farming in the Atyrau region. In breeding and breeding work, linear breeding of animals of leading colors is effective using the degree of inbreeding $F=25\%$, intensively expressed by 8.46%, and outbred animals by 14.8%. A low yield with a weakened severity of 27.71% was established in the first group, which is lower than the indicator of the fourth group by 14.49% (38.20%) ($P>0.05$). The creation of inbred lines allowed to significantly increase the productivity of hybrid offspring obtained as a result of crossing inbred lines. Although the breeding of inbred lines requires very high costs due to the large culling of individuals as a result of low viability and low productivity, it has contributed to the widespread use of linear breeding in animal husbandry. This is the basis for creating special crosses.

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DETERMINATION OF THE BIOLOGICAL PROPERTIES OF PATHOGENS OF THE TRICHOPHYTON RUBRUM STRAIN ISOLATED FROM THE HUMAN BODY

Annotation

Mycoses of the skin and nails *Trichophyton rubrum* is one of the most common infections in humans and is more common in immunocompromised patients. Mycosis of the feet or foot fungus is one of the most common forms of dermatological diseases. According to statistics, every third person at least once in his life faces a similar lesion of the epidermis. Mycosis is a contagious disease, so it should be treated as soon as possible. Statistics say that about a third of the world's population suffers from foot fungus. Among all skin mycoses, this form of the disease is the most common. You can get infected with the fungus at any age. About 20% of patients are children and adolescents, about 40% are elderly people and patients with diabetes.

A fungal infection provokes the development of erysipelas on the feet. This reduces local cellular immunity and makes treatment difficult. Timely detected fungal disease is quite well treatable, but the treatment of the advanced form of the fungus can be delayed for many months. During the infectious process, a special metabolic adaptation takes place, which allows the dermatophyte to interact with the pathogens of the host, adhere to the skin tissues, penetrate, absorb nutrients and overcome the host's defense mechanisms. This process, the interaction of metabolic fluctuations and degeneration of the body, the response to stress is an important factor in the adaptation of several pathogens. One of the most common problems is inadequate sampling of skin and nails. Host cells also respond to pathogenic stimuli by stimulating intracellular signaling pathways that trigger an immune response against an infectious agent. Understanding the biological aspects of these activities and observing their characteristics will help stimulate new research.

Key words: *pathogens of dermatomycosis, dermatomycetes, nutrient medium, mycelium. Trichophyton rubrum, growth conditions, proteolytic activity.*

Introduction. Despite the high incidence of fungal infections, the world scientific community pays insufficient attention to this issue. [8, 9], obtained the molecular genetic characteristics of various strains of *Trichophyton* and are looking for ways to treat the disease.

Dermatophytes are one of the most common human diseases. A well-adapted host-parasite relationship leads to many clinical manifestations, and most of the interaction between host and parasite is due to the production of certain fragments and enzymes, especially *Trichophyton rubrum*, that live in tissues, chemically or physically altering the environment. It can grow by acting directly on the digestion of host proteins. The data were analyzed with a focus on enzymes produced by pathogenic fungi.

However, the exozymes produced by dermatophytes are keratinase, lipase, phospholipase, elastase, collagen and protease.

There are about 40 types of dermatophytes - Microsporium, Trichophyton and Epidermophyton. They have two important properties: keratinophilic and keratinolytic. This means that, in its saprophytic state, keratin is able to be digested in vitro and used as a substrate, and some can penetrate into tissues in vivo and cause calf sedimentation. *T. rubrum* is the most common causative agent of dermatophytosis, found mainly on human feet, skin and nails. One of the most popular anthophilic species, *T. rubrum*-dermatophytes, is a fungus that commonly causes skin diseases. Very little is known about the mechanism of its penetration and pathogenicity. Although it is usually not life-threatening, infections are long-lasting, recurrent, and very difficult to treat. The main factor of virulence is the ability of the fungal pathogen to produce and release proteolytic enzymes. The aim of the study was to isolate and identify *T. rubrum* from clinical specimens with dermatophytosis using conventional methods (macroscopic and microscopic characteristics, biochemical, etc.).

The ability of fungal pathogens to secrete proteolytic enzymes and secretions is a key factor in virulence. The aim of this study is to identify and identify *T. rubrum* from clinical specimens with dermatophytosis (macroscopic and microscopic characteristics, biochemical and physiological tests, optimum temperature, pH, nutrient medium, i.e. concentration and incubation period).

Materials and methods. Samples were taken from patients of the NKP dermatological center at the SEM "Multidisciplinary city hospital No. 3" in Nur-Sultan (Nur-Sultan, Republic street 50/2) (Figures 1,2,3). There were no restrictions on age, sex and duration of the disease. The following criteria are: thickening and discoloration of the nail plate (pale yellow, yellow, white or gray-black), skin damage, unevenness or damage to the nail plate (Fig. 4); The fungus was detected by direct microscopic examination and positive culture for *T. rubrum*. Microconidia can be spherical, pear-shaped, or irregular in shape and range in size from 2–3 x 2–4 μm.

Clinical control method: instillation of 10% KOH solution.

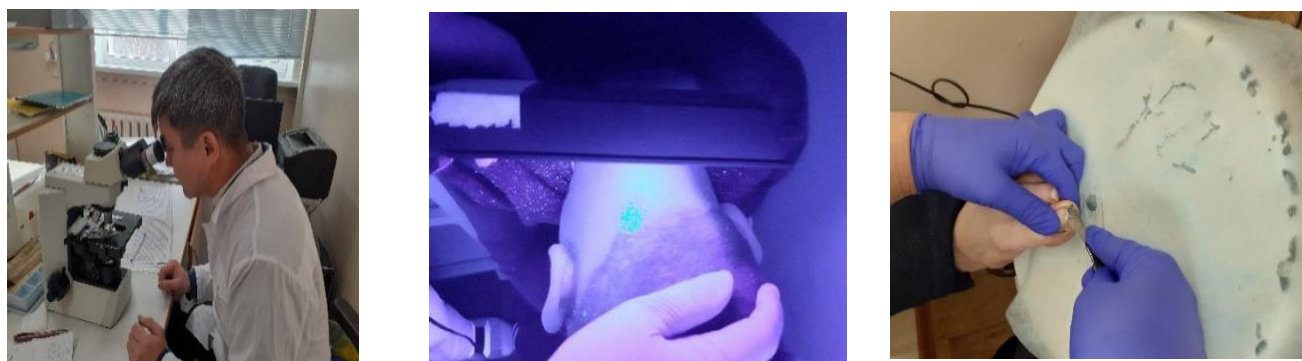


Figure 1. Microscopic Figure 2. Fluorescent smear or sample Figure 3. From a method damaged nail method

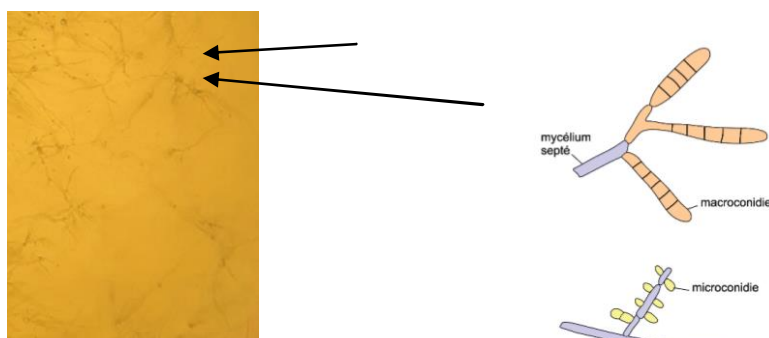


Figure 4. Microscopic structure of the *Trichophyton rubrum* strain. Morphology

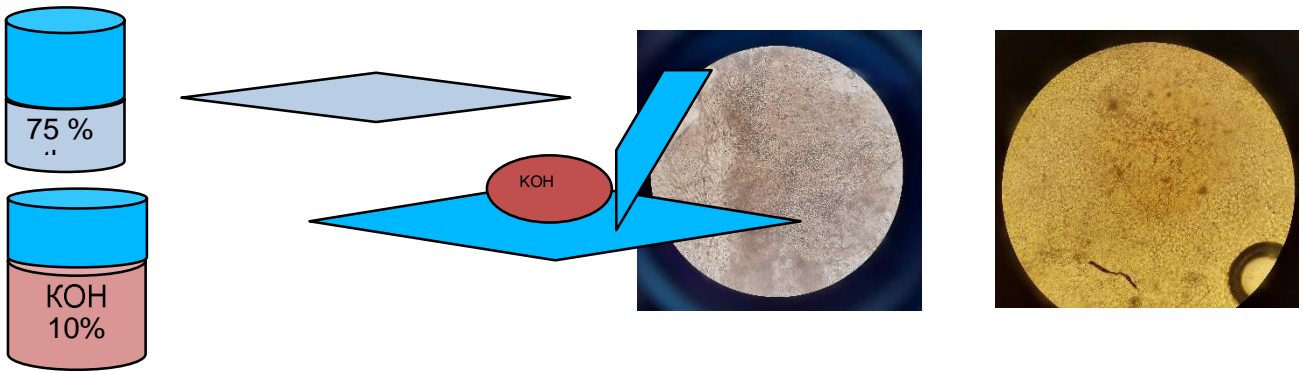


Figure 5. Method of control in the clinical case of *Trichophyton rubrum*



Figure 6. Morphological features of *Trichophyton rubrum* fungus planted in Saburo medium



Figure 7. Control of microscopic structure, development time by the square method.



Figure 8. Symptoms of human infection with *Trichophyton rubrum* strain in the clinical setting.

Using the clinical control method, all surgical instruments and nail samples were sterilized with 75% ethanol. The affected area of each nail was scratched and applied to the slide on the slide. A drop of 10% potassium hydroxide (KOH) was added to each slide, and the added solution was stored on the slide for 30 minutes, after which the slides were observed under an optical microscope (Fig. 5).

The colony of the *Trichophyton rubrum* strain is opaque, dense in consistency, the surface is fluffy, like cotton, the structure is homogeneous. The underside of the wine is slightly pigmented red, pink or yellow-olive.

Figure 7 shows the observation of microscopic structure and development time by the square method (cubic method). This method was used to control the growth rate of *Trichophyton rubrum* under favorable conditions. Every 2 hours, you can observe the growth in the form of a homogeneous mycelium, the growth rate is very high and is aimed at the concentration of nutrients. However, if there is enough food and they remain for a long time, a pigment resembling red wine is released from the bottom of their colony, which becomes more intense over time.

The clinical symptoms of a human infection with *Trichophyton rubrum* are shown in Figure 8.

When monitoring the clinical situation, the most infected were people of middle age (from 46 to 61 years), followed by people with stress. Most of them are widespread in society. We identified patients with a *Trichophyton rubrum* strain infection that lasted 3 to 10 months. The clinical manifestations of the patients were as follows: the nail plates are thickened, pale yellow (pale yellow, white, yellow or gray-black), there is a violation of the uniformity of the nail plate. Additional patient information is provided in the table below.

Additional information

Table 1. Basic data on patients infected with *Trichophyton rubrum*

№	floor	Age	Diagnostics	Strain	Location	Morphological signs / clinical signs /
1	Female	46	Onychomycosis	T.rubrum	thumb	All nails are thick and yellow, without the nail plate, subungual debris.
2	Female	55	Onychomycosis	T.rubrum	toenails	Part of the nail has thickened and turned yellow, there is subcutaneous debris, the nail plate is missing, the location of the nail plate is uneven.
4	That man	52	Onychomycosis	T.rubrum	toenails	The distal part of the nail is white with subungual debris.
5	That man	57	Onychomycosis	T.rubrum	thumb	One part of the nail has turned yellow / blackened, one part of the nail plate is missing.
6	Female	60	Onychomycosis	T.rubrum	toenails	All nails are white, no nail plate, feet are a little dirty

Appearance: all over the world. An anthropophilic dermatophyte that colonizes human keratinized tissue. Pathogens caused by *Tinea pedis* or *tinea unguium*. It can cause infection to other parts of the body, such as *tinea corporis* or *tinea inguinalis* in the groin area. Infection: transmission from person to person through direct or indirect contact (for example, in the pool, sauna, or gym).

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ТҮЙІН

Инфекциялық процессте дерматофит-иесінің қоздырғыштарымен өзара әрекеттесуі арқылы тері ұлпаларына жабысып, енуіне, қоректік заттарды сіңіруге және иесінің қорғаныш механизмдерін жеңуге мүмкіндік беретін ерекше метаболитикалық бейімделу жүзеге асады. Бұл үрдіс, ағзаның метаболитикалық ауытқу және заталмасу, стресс реакциясы арасындағы өзара әрекеттесулері бірнеше патогендердің бейімделуіне маңызды фактор болып табылады. Жиі кездесетін проблемалардың бірі-тері және тырнақ сынамасын іріктеудің дұрыс емес әдісі. Иесінің жасушалары, сондай-ақ патогенді ынталандырушы -ларға жауап береді, жұқпалы агентке қарсы иммундық жауапты іске қосатын жасушаішілік сигнал жолдарын ынталандырады. Бұл әрекеттердің биологиялық аспектілерін түсіну олардың ерекшеліктерін бақылау жаңа зерттеулерді ынталандыруға көмектеседі. Сабуро декстроза агарындағы (SDA) *T. rubrum* колониялары мақта немесе ұнтақ тәрізді, ақ немесе ашық түсті артқы жағында қоңыр, тегіс немесе қыртысты, пигменттері бар өнім түзілді. Өсудің оңтайлы шарттары 30°C, рН6 және SDA ортасы болды. Дерматомицет саңырауқұлақтары құрамында кератин бар ұлпаларда жақсы дамидыны байқалды. Сонымен қатар субстрат ретіндегі казеинге қарсы протеолитикалық белсенділік *T. rubrum* изоляттарының экзоклеткадан тыс протеазаны шығаруға қабілеті бар екенін көрсетті. Екінші жағынан, протеолитикалық белсенділік рН мәніне, температураға және субстраттың концентрациясына байланысты өзгерді. Келтірілген деректер *t. rubrum* жұқпасының инвазиясы мен патогенезіндегі протеолитикалық белсенділіктің өмірлік маңызды рөлін көрсетуі мүмкін. Тиісті әдістерді пайдалана отырып тырнақ және тері үлгілерінің микологиялық дақылдарын жинау, стандартталған зертханалық өңдеу және өсіру, онихомикоздың дәл диагностикасын қамтамасыз ету үшін маңызды қадам болып табылады.

РЕЗЮМЕ

В инфекционном процессе дерматофит-специфическая метаболическая адаптация, позволяющая при взаимодействии с возбудителями хозяина цепляться и проникать в ткани кожи, поглощать питательные вещества и преодолевать защитные механизмы хозяина. Этот процесс, взаимодействие организма между метаболическими отклонениями и метаболизмом, стрессовыми реакциями, является важным фактором для адаптации нескольких патогенов. Одной из наиболее распространенных проблем является неправильный метод отбора проб кожи и ногтей. Клетки хозяина также реагируют на патогенные раздражители, стимулируя внутриклеточные сигнальные пути, которые активируют иммунный ответ против инфекционного агента. Понимание биологических аспектов этих действий наблюдение за их особенностями помогает стимулировать новые исследования. Сабуро декстроза агар (SDA) *T.* колонии *rubrum* были хлопчатобумажными или порошкообразными, белыми или светлыми с коричневой, гладкой или коркой на спине, образуя продукт с пигментами. Оптимальными условиями для роста были 30°C, рН6 и среда SDA. Было замечено, гриб Дерматомицет хорошо развивается в тканях, содержащих кератин. Кроме того, анти-казеиновая протеолитическая активность в качестве субстрата *T.* показано, что изоляты *rubrum* обладают способностью вырабатывать протеазу вне экзоклетки. Протеолитическая активность, с другой стороны, варьировалась в зависимости от значения рН, температуры и концентрации субстрата. Приведенные данные *t.* может указывать на жизненно важную роль протеолитической

активности в инвазии и патогенезе гиргит-инфекции. Сбор, стандартизированная лабораторная обработка и выращивание микологических культур образцов ногтей и кожи с использованием соответствующих методов является важным шагом для обеспечения точной диагностики онихомикоза.

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ИНТЕНСИВНОСТЬ РОСТА МОЛОДНЯКА ЦИГАЙСКОЙ ПОРОДЫ И ЕЕ ПОМЕСЕЙ С ЭДИЛЬБАЕВСКОЙ

Аннотация

Мясо получают от овец всех пород, но наиболее высокой мясной продуктивностью обладают породы, специализированные в мясном, мясо-шерстном и мясо-сальном направлениях.

В работе представлены результаты влияния скрещивания овцематок цигайской породы с баранами эдильбаевской породы на интенсивность роста молодняка в основные периоды выращивания.

С 3- недельного возраста и до 12 мес. под наблюдением находился молодняк следующих подопытных групп:

I – цигайская (чистопородные баранчики), II - ½ эдильбай х ½ цигайская (баранчики), III – цигайская (чистопородные валушки), IV - ½ эдильбай х ½ цигайская (валушки).

При изучении роста и развития молодняка отмечается положительный эффект по величине абсолютного прироста. Так, у баранчиков цигайской породы живая масса за период выращивания от рождения до 12 мес. составляло 46,23 кг, валушков этого генотипа - 42,49 кг, помесных баранчиков ½ эдильбай х ½ цигайская – 55,21 кг, помесных валушков – 50,81 кг.

Установлено, что кастрация оказало негативное влияние на величину абсолютного прироста живой массы молодняка. Вследствие этого валушки во все возрастные периоды уступали баранчикам по его уровню. Так чистопородные баранчики цигайской породы I группы превосходили валушков этого же генотипа III группы по валовому приросту живой массы в подсосный период от рождения до 4 мес на 1,93 кг, с 4 до 8 мес – на 1,33 кг, с 8 до 10 мес – на 0,44 кг, с 10 до 12 мес – на 0,04 кг, с 4 до 12 мес – на 1,81 кг, от рождения до 8 мес – на 3,26 кг, от рождения до 10 мес – на 3,70 кг, за весь период выращивания от рождения до 12 мес – на 3,74 кг.

Аналогичные межгрупповые различия по абсолютному приросту живой массы установлены и между помесными баранчиками и валушками.

Ключевые слова: овцеводство, цигайская, эдильбаевская порода, баранчики, валушки, помеси, абсолютный прирост живой массы.

Овцеводство является одной из важных отраслей животноводства во всех странах СНГ [1-3]. Оно служит источником высококачественного мяса – баранины и специфического сырья для различных отраслей промышленности [4-13].

В овцеводстве используются животные цигайской породы. Повышение уровня мясной продуктивности овец этой породы возможно при скрещивании с баранами эдильбаевской породы.

Цель исследования. Изучение интенсивности роста молодняка цигайской породы и помесей, полученных от скрещивания баранов эдильбаевской породы с матками цигайской породы.

Материал и методы исследования. При проведении исследования из молодняка овец зимнего сезона рождения были сформированы 2 группы баранчиков: чистопородные цигайской породы и её полукровные помеси с эдильбаевской породой. В 3-недельном возрасте половина