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Genetic resources of dog breeds in India

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Abstract

Dog breeds are the result of human selection for particular phenotypic characteristics, including size, shape, colour of coat, conformation and behaviour. It's possible that strict phenotypic selection caused genetic information to be lost. This study expands on the varieties of dogs that are currently available in India. In addition to being a well-known model species for human disease, domestic dogs are significant for a variety of social and economic reasons. There are numerous economic benefits to owning domestic dogs. The reduction of breed uniqueness and between breed diversity can occur when selection is made for enhanced output at the expense of conserved features including adaptability, particular genetic variants, and product quality. Effective management techniques must thus be implemented in order to guarantee the maintenance of genetic diversity in dog breeds.

Keywords: Breed, dog, genetic conservation

Introduction

Breeds are characterized as intraspecies groupings with comparatively similar physical traits that were created by humans under well regulated conditions. Canids that were native to a nation or region were the initial source of dog breeds, and breeding animals were chosen based on phenotypic characteristics such size, coat colour, structure, and behaviour. Existing breeds served as the foundation for later breeds, each of which contributed a phenotypic characteristic that bred true. Most of the current dog breeds were created in the 19th century, according to breed histories that are now available. Canine breeds such as the tall, elegant borzoi and the short, stocky pug are the product of rapid phenotypic selection; no other animal species exhibits the degree of phenotypic variety found in purebred dogs. Genetic variety is lost as a result of the intense and targeted selection pressure that domestic breed development imposes; some breeds may lose more genetic variation than others as a result of differences in breeding procedures and breed histories. The National Bureau of Animal Genetic Resources (NBAGR), Karnal, Haryana, India is the nodal agency for the registration of newly identified germplasm of livestock and poultry of the country. It has also been given temporary authority for registration of dog germplasm of the country. Presently, there are 212 registered breeds of livestock and poultry in India which includes 53 breeds of cattle, 20 of buffalo, 44 of sheep, 37 of goat, 7 of horse and ponies, 9 of camel, 13 of pig, 3 of donkey, 3 of dog, 19 of poultry, 1 of yak, 2 of duck and 1 of geese in addition to many more not characterized and accredited so far, besides populations/breeds of other species like mules, mithuns, quails etc. which are yet to be classified in to well descript breeds. The vast and varied population of animals that country possesses is indigenous and almost 50% of this population belong to well descript and recognized indigenous breeds of different species. The remaining large proportion of farm animal population is of non-descript native animals which so far have not been characterized systematically.

Dog genetic resources

There are three registered breeds of dog distributed in different parts of the country especially southern India. A dog breed is classified according to the morphology, which include body size, skull shape, tail phenotype, fur type, body shape, and coat colour and their behavioural traits include guarding, herding, and hunting, and personality traits such as hyper-social behaviour, boldness, and aggression.

Rajapalayam

It is mainly distributed in Virudhunagar, Tirunelveli and Madurai districts of Tamil Nadu. The coat colour is white in nature. The estimated population is 3000 to 4000 in number. These dogs are medium in size with a compact body. The Skin, nostrils, and eyelids are pink and the eyes are golden in colour. The height at wither ranges from 55 to 72 cm in males and 38-70 cm in females. The adult body weight ranges 14 to 32 Kg. The Rajapalayam dogs are utilized for guarding farms and farmhouses. They possess the attributes of high obedience and easy trainability. The barking is medium pitched. Overall, the Rajapalayam dog is a noble and dignified breed with a rich heritage in India, valued for its loyalty, hunting prowess, and distinctive appearance.

Chippiparai

It is mainly found in Tuticorin Tirunelveli, Virudhunagar and Madurai districts of Tamil Nadu. The estimated population is about 6000. The Chippiparai dogs are medium in size. The coat colour varies from fawn to dark brown, brownish-black and black. The black dogs have white markings on both sides above the eyes or black circles around the eyes. The eyes are golden colour and oval in shape. The ears are medium in size and drooping or semi drooping in nature. The height at wither ranges from 60 to 76 cm in males and 54 to 70 cm in females. The adult body weight ranges from 13.6 to 32.5 Kg. The utility of this dog is mainly for guarding and hunting, but they are also kept as a hobby and pride by the owners. These dogs are high in obedience and easy to train. The Chippiparai dog is a noble and athletic dog breed with a rich history in India. It is valued for its hunting prowess, loyalty, and graceful appearance; it continues to be cherished by enthusiasts and breeders dedicated to its preservation.

Mudhol hound

It is also known as Pissouri hound and Lahori hound. It is distributed in Bagalkot and Vijapur districts of Karnataka. The estimated population is about 1500. They are strongly built, having high stamina and endurance. The body is symmetrical with an elegant and lean look. The coat colours mainly include white, brown, patchy, brindle, black, fawn along spotted. The head is proportionately small. The skull is long and narrow. The eyes are dark brown or hazel coloured, oval, and obliquely placed. The ears are medium, thin, triangular, and set high. The chest is long and deep. The abdomen is well tucked. The tail is long, tapering and slightly curved. The height at withers ranges from 73 to 80 cm in males, and 61 to 74 cm in females. The adult body weight ranges from 21 to 40 Kg. The gait of the Mudhol Hound, with an aerodynamic body, gives an effortless stride, giving a flying appearance. It is mainly used for guarding and shepherding. These dogs are also high in obedience and easy to train. The Mudhol Hounds are prized for their grace, agility, and loyalty, making them excellent companions for active families who can provide them with the exercise and mental stimulation they need.



Rajapalayam

Chippiparai

Mudhol Hound

Improvement strategies

The improving indigenous dog breed populations involve several key strategies is

- 1. Conservation Efforts:** Establishing conservation programs to protect indigenous breeds from extinction. This includes documenting breed standards, genetic diversity, and promoting their unique traits.
- 2. Healthcare and Nutrition:** Providing access to veterinary care, vaccinations, and nutritionally balanced diets to ensure the overall health and well-being of the dogs.
- 3. Breeding Practices:** Encouraging responsible breeding practices that prioritize genetic diversity and avoid harmful genetic traits. This may involve setting up breeding registries and guidelines.
- 4. Education and Awareness:** Educating dog owners and breeders about the importance of preserving indigenous breeds, their historical significance, and their specific needs.
- 5. Support from Authorities:** Advocating for government support and policies that protect indigenous breeds and promote their conservation.
- 6. Community Involvement:** Engaging local communities in the conservation efforts, fostering pride in indigenous breeds, and encouraging adoption of these dogs.
- 7. Research and Collaboration:** Supporting research into indigenous breeds to understand their genetic makeup, health issues, and specific care requirements.
- 8.** By implementing these strategies, we can work towards safeguarding indigenous dog breeds and ensuring their survival for future generations.

Challenges

The addressing following challenges require concerted efforts in breeding, conservation, and awareness-raising about the value of indigenous dog breeds.

Genetic Diversity: Small populations can lead to inbreeding and genetic health issues.

- 1. Recognition and Preservation:** Many indigenous breeds are unrecognized or overlooked, leading to loss of unique genetic traits.
- 2. Utility and Adaptability:** Some breeds face challenges in adapting to modern roles or environments.
- 3. Conservation Efforts:** Lack of funding and infrastructure for conservation programs.
- 4. Cultural and Economic Shifts:** Changing lifestyles and preferences may diminish interest in traditional breeds.

Conclusion

In conclusion, safeguarding indigenous dog breeds is crucial not only for preserving genetic diversity but also for honouring cultural heritage and promoting sustainable canine populations worldwide. By fostering awareness, supporting conservation efforts, ensuring healthcare access, and advocating for policy recognition, we can collectively secure a brighter future for these unique breeds, enriching both human society and the natural world they inhabit. Through collaborative efforts and a shared commitment to their welfare, we can ensure that indigenous dog breeds continue to thrive and contribute to our global tapestry of biodiversity.

Conflict of Interest

Not available

Financial Support

Not available

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