

## **PATRILINEAL GENETIC ANALYSIS OF THE ORIGIN OF AZARIS OF THE MIDDLE EAST**

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### **ABSTRACT**

The origin of the Turkic-speaking population of the north-western provinces of Iran, the so-called Azaris, is the subject of long-year debate. Here, we present preliminary results on testing of several hypotheses concerning their origin: 1) the Azaris are the descendants of the Turkic ethnic groups migrated from Central Asia; 2) they have an autochthonous origins; 3) they are of Iranian origin; and 4) they have mixed ethnic origin with unknown proportions of source populations' contribution. The results show that Azaris have much weaker genetic affinity with the populations from Central Asia and the Caucasus than with their immediate geographic neighbours. Relying on these outcomes one can suggest that language replacement (change) with regard to Azaris occurred through "elite dominance" mechanism rather than "demic diffusion" model.

**Keywords:** *Iranian people, Azaris, Language of Azari people, Genetic Origin, Language Change (Replacement)*

### **INTRODUCTION**

Around 3000 BCE, the ancestors of Iranians first immigrated from their Central Asian homeland - where they lived with their Indian kin as one people - to the Iranian Plateau. There they came into contact with the already established civilisations such as the Kassites or the Elamites, the latter having over 2000 years of political presence in the plateau. Probably mostly through integration and taking advantage of the weakness of these civilisations because of their constant warfare with the empires of Mesopotamia, the Aryans came to dominate the society, although at the same time adopting much of the existing culture and social norms. The integration of Aryans with the locals and the settlement of the tribes all around the plateau gave raise to the first Iranian civilisations. Throughout its long history, people of Iran have intermarried with Greeks, Arabs, Mongols, Turks, and other tribes. Today, most of the population have similar characteristics and obvious differences are rare. The worthy exceptions are the members of the semi-nomadic Turkman tribes who show clear Turko-Mongolian anatomies. Azerbaijan (Atropatgan) is one of the main and ancient places of Iran where it has Aryan residents. Its name has been taken from an old tribe namely Atropatgan. This area with the oldness of 2300 years has always been considered as one of the most famous historical spots and the most valuable geographical places in Iran and in the world as well. The Azerbaijani are of mixed ethnic origin, the oldest element deriving from the indigenous population of eastern Transcaucasia and possibly from the Medians of northern Persia. There is evidence that, despite repeated invasions and migrations, aboriginal

Caucasians may have been culturally assimilated, first by Ancient Iranian peoples and later by the Oghuz. Considerable information has been learned about the Caucasian Albanians including their language, history, early conversion to Christianity, and close ties to the Armenians. The Udi language, still spoken in Azerbaijan, may be a remnant of the Albanians' language. This Caucasian influence extended further south into Iranian Azerbaijan. During the 1st millennium BC, another Caucasian people, the Mannaeans (Mannai) populated much of Iranian Azerbaijan. Weakened by conflicts with the Assyrians, the Mannaeans are believed to have been conquered and assimilated by the Medes by 590 BC (Rashidvash, 2011). Azerbaijanis in Iran are mainly found in the northwest provinces: East Azerbaijan, Ardabil, Zanjan, parts of Hamedan, Qazvin, West Azerbaijan and Markazi. Many others live in Tehran, Fars Province, and other regions. The principal aim of this paper is to test the existing principal hypotheses on the Azaris' origin through identification of their place on the genetic landscape of the Middle East. We used paternally transmitted genetic markers located on Y-chromosome which enable the reconstruction of patrilineal genetic history of human populations. As comparative datasets we used several ethnically distinct groups currently living in the Middle East, the Caucasus, Central Asia and the Indian subcontinent. They consist of 16 populations representing Indo-European, Afro-Asiatic, North Caucasian, and Altaic language families. The Turkmens (representing a Turkic-speaking group from Central Asia) and Adyghes (being Caucasians by origin) are considered here as possible source populations for Azaris genetic origin (Garthwaite, 2005). DNA samples were collected in 99 male Azaris living in Tabriz (north-west Iran) with strong local identity whose paternal grandfathers lived in the same region at least three generations. All samples were screened for 18 molecular genetic markers broadly used in population genetics studies. On the plot of genetic distances we can clearly identify several distinct clusters of the populations, which are in good agreement with geographical and, in some cases, linguistic classification of the groups. Armenians, Turks, Kurds, Jews, and Persians and form a distinct sub-cluster of the Middle East, while Arabs (Palestinian Arabs, Yemenis, and Bedouin Arabs) shape another separate entity. Other ethnic datasets, including hypothesised source populations of Turkmens and Adyghes, are located far beyond the limits of the two sub-clusters of the Middle Eastern origin.

### **THE RELATIONSHIP BETWEEN IRANIAN PEOPLE AND AZARIS**

The Persian people are part of the Iranian peoples who speak the modern Persian language and closely akin Iranian dialects and languages. The origin of the ethnic Iranian/Persian peoples are traced to the Ancient Iranian peoples who were part of the ancient Indo-Iranians and themselves part of the greater Indo-European ethnic group. The synonymous usage of Iranian and Persian has persisted over the centuries although some modern Western sources use Iranic Iranian as a wider term that includes the term Persian as well as related Iranian languages and ethnic groups. However these terms have been used both synonymously as well as in a complementary fashion since ancient times; as the Ancient Iranian peoples such as the Old Persians, Medes, Bactrians, Parthians and Avesta peoples considered themselves to be part of the greater Iranian ethnic

stock. The term Persian translates to from or of Persis which is a region north of the Persian Gulf located in Pars, Iran. It was from this region that Cyrus the Great, the founder of the Achaemenid empire, united all other Iranian empires such as the Medes and expanded the Persian cultural and social influences by incorporating the Babylonian empire and the Lydian empire. Although not the first Iranian empire the Achaemenid empire is the first Persian empire well recognized by Greek and Persian historians for its massive cultural, military and social influences going as far as Athens, Egypt and Libya. Besides modern Iran (Persia) ethnic Persians are also found in Central Asia (Afghanistan, Tajikistan, Uzbekistan) and are usually called Tajiks and Farsiwans. Persians are also found in Iraq particularly in southern Iraq (Babylonia) – a region which has been historically an integral part of Persia. Other closely related Iranian languages and dialects to modern Persian Pārsi-ye Dari is one of the varieties of Persian Iranian but due to its widespread usage as the most common Iranian language, it became synonymous with Persian which derive from Western Middle Iranian languages, such as the Luri, Gilaki, Mazandarani, Talyshi, Tat-Persian and other closely akin Iranian languages have been mentioned as part of the Persian/Irani continuum. Some names such as Tat, Tajik, Sart and Ajam have also been used by foreigners or Persians in reference to Iranians/Persians. The term Parsi, Tajik, Irani and Tat have been used interchangeably for Persian and Iranian speakers of Iran during the Middle Ages including the Safavid and the Qajar era. The Persians of Central Asia who inhabit Tajikistan and parts of Afghanistan and Uzbekistan are also called Tajiks, while the term Tajik is contemporaneously used for Iranian people who speak Pamiri languages (Saidiyan, 2004).

Persian identity, at least in terms of language, is traced to the ancient Indo-European Aryans who arrived circa 2000-1500 BCE. Starting around 550 BCE, from the province of Fars, the ancient Persians spread their language and culture to other parts of the Iranian plateau through conquest and assimilated local Aryan and non-Aryan groups over time. This process of assimilating other Iranian peoples continued in the face of Greek, Arab and Turkic invasions and would take centuries and continued right up to Islamic times. Numerous dialects and regional identities emerged over time, while a Persian national orientation fully manifested itself by the 20th century, mirroring developments in post-Ottoman Turkey, the Arab world and Europe. With the losses of Afghanistan and territories in the Caucasus Persian identity became focused upon the current borders of Iran. Looking to link the modern state with the imperialist past, the Reza Shah government switched the country name from Persia to Iran in 1935, signaling the emergence of Iranian nationalism and later, following the Iranian Revolution, emphasis shifted to Shia Islamic values. The synonymous usage of Iranian and Persian has persisted over the centuries despite the varied meanings of Iranian, which includes different but related languages and ethnic groups (Diakonoff, 1990). The Persian language is one of the world's oldest languages still in use today and is known to have one of the most powerful literary traditions, with formidable Persian poets like Ferdowsi, Hafez, Khayyam, Attar, Saadi, Nezami, Roudaki, Rumi and Sanai. By native speakers as well as in Urdu, Arabic and other neighboring languages, it is called Fārsī, and additionally Dari or Tajiki in the eastern parts of Greater Iran. It is part of the

Iranian sub-section of the Indo-Iranian branch of the Indo-European family of languages. Persian-speakers are today in the majority in Iran, where they speak the western dialect, Tajikistan and Afghanistan and form a large minority in Uzbekistan as well, where they speak the eastern dialect (Dari or Tajiki). Smaller groups of Persian-speakers are found in Pakistan, western China (Xinjiang), as well as in the UAE, Bahrain, Iraq, Kuwait, Oman and Azerbaijan (Rashidvash, 2012).

At the present time, a nation can settle in a country with clear borders or can be separated for historical events. Their races can be divided among some countries or can be scattered in different areas for immigrations. In Iran, with these geographical borders, there are several nations in which their characteristics are presented in their race and language. The official language of Iran is Persian (Farsi). Persian is a West Iranian language of the Indo-European family of languages and is spoken in those parts of Iran where the Fars people, Persians, dwell, as well as in the Republic of Tajikistan. Tehran, Isfahan, Fars, Khorasan, Kerman and Yazd are some of the provinces inhabited by the Persians (Yarshater E ,1987). There are a number of other national and ethnic groups living in various parts of Iran. The historical background and anthropological origin of these groups have been subject of numerous research works, but researchers are not unanimous concerning many of the questions posed. The most important of these groups with specific history, culture, customs, and language are the Azeri's, the Kurds, the Mazandaran and Guilan, the Baluchis, the Arabs, the Turkmans and the Lurs. There are also a number of ethnic minorities, but they have not been given much anthropological attention for a number of reasons, their small population and their extensive mixing with other Iranians being only two. The following is a general outline of the most populous ethnic and national groups mentioned.

The Azerbaijanis, Azerbaijani, Azərbaycanlılar, (آذربایجانلیلار) or Azarbaijanis are Turkic-speaking people living mainly in northwestern Iran and the Republic of Azerbaijan, as well as in the neighboring states, Georgia, Russia Dagestan and formerly Armenia. Also referred to as Azeris or Azaris (Azərilər, Азəрилəр, آذریلر) or Azerbaijani Turks Azərbaycan türkləri they also live in a wider area from the Caucasus to the Iranian plateau. The Azerbaijanis are predominantly Shi'a Muslim and have a mixed cultural heritage including Turkic, Iranic and Caucasian elements. Following the Russo-Persian Wars of 1813 and 1828, the territories of the Qajar Persian Empire in the Caucasus were ceded to the Russian Empire and the treaties of Gulistan in 1813 and Turkmenchay in 1828 finalized the borders between Czarist Russia and Qajar Iran. The formation of the Azerbaijan Democratic Republic in 1918 established the territory of the Republic of Azerbaijan. Despite living on two sides of an international border the Azeris form a single ethnic group. However, northerners and southerners differ due to nearly two centuries of separate social evolution in Iranian Azerbaijan and Russian Soviet-influenced Azerbaijan. The Azerbaijani language unifies Azerbaijanis, and is mutually intelligible with Turkmen, Qashqai,

Gagauz and Anatolian Turkish including the dialects spoken by the Iraqi Turkmen all of which belong to the Oghuz, or Western, group of Turkic languages (Rashidvash, 2012).

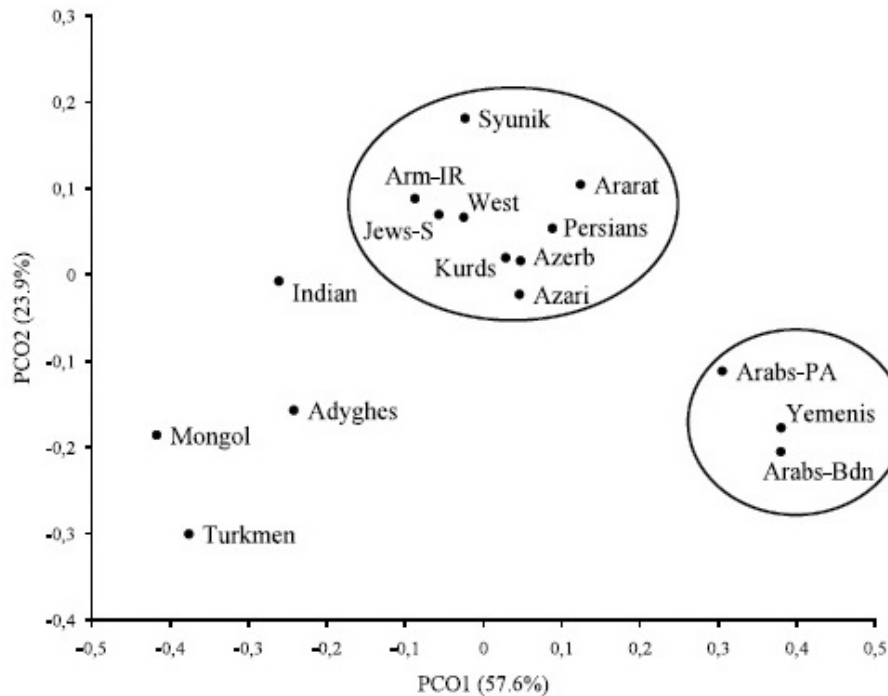
Azerbaijani any member of a Turkic living chiefly in the Republic of Azerbaijan and in the region of Azerbaijan in northwestern Iran. At the turn of the 21st century there were some 7.5 million Azerbaijani in the republic and neighbouring areas and more than 15 million in Iran. They are mainly sedentary farmers and herders, although some of those in the republic have found employment in various industries. Most Azerbaijani are Shīite Muslims. They speak Azerbaijani, a language belonging to the southwestern branch of Turkic languages. The Azerbaijani are of mixed ethnic origin, the oldest element deriving from the indigenous population of eastern Transcaucasia and possibly from the Medians of northern Persia. This population was Persianized during the period of the Sāsānian dynasty of Iran (3rd–7th century ce). Turkicization of the population can be dated from the region's conquest by the Seljuq Turks in the 11th century and the continued influx of Turkic populations in subsequent centuries including those groups that migrated during the Mongol conquests in the 13th century. The greater portion of the tribes that formed the Mongol forces or were stimulated by the Mongol conquest to migrate were Turkic. Parts of the region later passed variously under the Kara Koyunlu and the Ak Koyunlu rival Turkic tribal confederations and at the beginning of the 16th century the turcophone Şafavid dynasty ( Raies niya, 2007).

The Azerbaijanis speak Azerbaijani sometimes called Azerbaijani Turkish or Azeri a Turkic language descended from the Western Oghuz Turkic language that became established in Azerbaijan in the 11th and 12th century CE. Early Oghuz was mainly an oral language and the later compiled epics and heroic stories of Dede Korkut probably derive from an oral tradition. The first accepted Oghuz Turkic text goes back to 15th century. The first written classical Azeri literature arose after the Mongol invasion. Some of the earliest Azerbaijani writings trace back to the poet Nasimi (died 1417) and then decades later Fuzûlî (1483–1556). Ismail I, Shah of Safavid Persia wrote Azerbaijani poetry under the pen name Khatâ'i. Modern Azeri literature continued with a traditional emphasis upon humanism as conveyed in the writings of Samad Vurgun, Shahriar, and many others. Azerbaijanis are generally bilingual often fluent in either Russian in Azerbaijan or Persian (in Iran. As of 1996, around 38% of Azerbaijan's roughly 8,000,000 population spoke Russian fluently (Henning, 1954).

An independent telephone survey in Iran in 2009 reported that 20% of respondents could understand Azeri, the most spoken minority language in Iran, and all respondents could understand Persian. The Iranians display considerable genetic diversity consistent with patterns observed in populations of the Middle East overall, reinforcing the notion of Persia as a vital crossroad for human disseminations (Regueiro et al., 2006) . The geographic area is remarkable for its high level of ethnic and linguistic diversity, comprising the major language families (Indo-European, Altaic and Afro-Asiatic) currently spoken by more than seventy ethnically different

populations. This demonstrates the role Iran played in population dispersal across the latitudinal belt spanning from Western Anatolia to the Indus Valley. However, there have been gaps in high-resolution genetic analyses for this region to uncover population history at a fine scale, for example for particular ethnic and linguistic groups. Among them the Turkic-speaking Iranian Azari population constitutes the largest ethno-linguistic group after Persian-speakers, accounting for 24 percent of Iran's population (CIA, 2010).

Some sources tend to designate them as the descendants of the Turkic ethnic groups who invaded the area from 11th century onward during several military campaigns (Golden, 1992). Still the majority of sources view the Azaris as having mixed ethnic origin going back to indigenous Caucasian populations and Iranians, who were influenced by Turkic languages throughout centuries of occupation under Turkic dynasties (Nasidze ,et al., 2004). The Iranian roots of Azaris, according to protagonists of this view can likely be traced back to ancient Iranian tribes, such as the Medes who lived on the territory of Azerbaijan (ancient Āturpatakān, roughly covering the modern Iranian provinces of Eastern Azerbaijan Western Azerbaijan, and Ardabil) and Scythian invaders, who arrived during the 8th century B.C.(Zadok, 2002). Some information is also available about the Caucasian Albanians as the main ethnic constituent of the inhabitants of the modern-day Republic of Azerbaijan in the South Caucasus called Azerbaijanis by the name of the state (Walker, 1991).



SPATIAL RELATIONSHIPS BETWEEN THE GROUPS BASED ON GENETIC DISTANCES

Abbreviations used: *Arabs-Bdn*: Bedouin Arabs; *Arabs-PA*: Palestinian Arabs; *Ararat*: Armenians living in Ararat Valley; *Arm-IR*: Iranian Armenians; *Azerb*: inhabitants of the Republic of Azerbaijan; *Azari*: population of north-west Iran; *Jews-S*: Sephardic Jews; *West*: Western Armenians; *Persians*: Persian-speakers of Iran.

To further test the hypothesis of Central Asian and Caucasian origin of Azaris we used special software designed for admixture analysis, Admixv2.0, which enables the evaluation of the relative genetic contribution of any source population in the origin of the given group ([http://web.unife.it/progetti/genetica/Isabelle/admix2\\_0.html](http://web.unife.it/progetti/genetica/Isabelle/admix2_0.html)). The results unambiguously support the pattern presented on the Figure. The genetic contribution of Turkmens and Adyghes is much less (4-5 times) while compared with the contribution of Persian-speakers (living, for instance, in Fars). Concluding the results obtained indicate that genetic distance between the populations considered depends in the first instance on the geographic proximity than on the common linguistic background. In this context, the results were highly expected taking into account the actual geographic location of the populations. The Azaris being situated between the Republic of Azerbaijan and Eastern Turkey, had more possibilities of genetic contacts with the closest neighbours, while gene flow between the populations of the same Republic and Eastern Turkey could have been rather limited. Relying on the results we can make rather strong inferences about the genetic relatedness between the populations under consideration. The principal one is that the Azaris have much weaker genetic affinity with Turkmens and Adyghes than with their immediate neighbours—Persians, Kurds, Azerbaijanis and Armenians. We have

all grounds to suggest that language replacement might have taken place through elite dominance phenomenon rather than demic diffusion model (Renfrew, 2002).

In addition, the modal genetic variant of Turkmen most frequently encountered in the given population, which could be considered as a signature of this group is virtually absent in Azaris thus confirming our findings about the mode of the language change. Here is a statement, the following observation by Igor M. Diakonoff based on the studies of L.V. Oshanin on the stability of certain genes in the different Turkic-speaking populations is worth quoting. "What actually happens in history,—the author says,—can be illustrated by a linguistic 'migration', which occurred in historical times, namely, the spread of the Turkic languages... It is well known that in a biologically stable population the recessive and the dominant genes will be maintained in the same proportion. The first historically attested Turkic tribes were anthropologically Mongoloid and hence had the typical Mongoloid feature of the epicanthic fold of the eyelid depending upon a dominant gene (Rafiee et al., 2009). If the movement of the Turkic languages from the borders of modern China to those of modern Turkey were actually a mass population movement, then the percentage of the epicanthus in the speakers of Turkish, Azerbaijani, Turkmen, Uzbek, Kazakh and Qyrghyz would be approximately identical.

The actual measurements, however, show the retention percentage of epicanthic fold to be, in males, 51% for the Qyrghyz, 22% for the Kazakhs, 11% for the Uzbeks, 6% for the Turkmen and below 2% for the Azerbaijanis; and in females, 83% for the Qyrghyz, 53% for the Kazakhs, 18% for the Uzbeks, and 10% for the Turkmen. For Turks, the retention percentage for both sexes tends toward zero. This means, of course, that the Turkic language was adopted each time by a certain local population from the newcomers and was then passed onto the next population; intermarriage of the local and immigrating population, and inclusion of local tribes in the general nomadic ethnicity, also played their role. The farther West the wave of migration passed, the less it included individuals who were bearers of the original genes (Diakonoff, 1990).

## **CONCLUSION**

The Azerbaijani are of mixed ethnic origin, the oldest element deriving from the indigenous population of eastern Transcaucasia and possibly from the Medians of northern Persia. The Caucasian origin mostly applies to the Azeri's of the Caucasus, most of whom are now inhabitants of the Republic of Azerbaijan. There is evidence that, despite repeated invasions and migrations, aboriginal Caucasians may have been culturally assimilated first by Iranians and later by the Oghuz. Considerable information has been learned about the Caucasian Albanians including their language, history, early conversion to Christianity and close ties to the Armenians. Many academics believe that the Udi language, still spoken in Azerbaijan, is a remnant of the Albanians' language. This Caucasian influence extended further south into Iranian Azerbaijan. During the 1st millennium BCE another Caucasian people, the Mannaeans (Mannai)



populated much of Iranian Azarbaijan. Weakened by conflicts with the Assyrians, the Mannaeans are believed to have been conquered and assimilated by the Medes by 590 BCE.

Some new genetic studies suggest that recent erosion of human population structure might not be as important as previously thought and overall genetic structure of human populations may not change with the immigration events and thus in the Azerbaijani case; the Azeris of Azerbaijan republic most of all genetically resemble to other Caucasian people like Armenians and people the Azarbaijan region of Iran to other Iranians. Y-chromosome haplogroups indicate that Indo-European-speaking Armenians and Turkic-speaking Azerbaijanians of the Republic of Azerbaijan are genetically more closely related to their geographic neighbors in the Caucasus than to their linguistic neighbors elsewhere. This indicates a language replacement of indigenous Caucasian peoples. There is evidence of limited genetic admixture derived from Central Asians specifically Haplogroup H12 notably the Turkmen, that is higher than that of their neighbors the Georgians and Armenians. MtDNA analysis indicates that the main relationship with Iranians is through a larger West Eurasian group that is secondary to that of the Caucasus according to a study that did not include Azeris but Georgians who have clustered with Azeris in other studies.

The conclusion from the testing shows that the Caucasian Azeris are a mixed population with relationships, in order of greatest similarity, with the Caucasus, Iranians and Near Easterners Europeans, and Turkmen. Other genetic analysis of mtDNA and Y-chromosomes indicates that Caucasian populations are genetically intermediate between Europeans and Near Easterners but that they are more closely related to Near Easterners overall. Scholars see cultural similarities between modern Persians and Azeris as evidence of an ancient Iranian influence. Archaeological evidence indicates that the Iranian religion of Zoroastrianism was prominent throughout the Caucasus before Christianity and Islam and that the influence of various Persian Empires added to the Iranian character of the area. It has also been hypothesized that the population of Iranian Azarbaijan was predominantly Persian-speaking before the Oghuz arrived. This claim is supported by the many figures of Persian literature, such as Qatran Tabrizi, Shams Tabrizi, Nezami and Khaghani, who wrote in Persian prior to and during the Oghuz migration, as well as by Strabo, Al-Istakhri, and Al-Masudi, who all describe the language of the region as Persian. The claim is mentioned by other medieval historians, such as Al-Muqaddasi. Other common Perso-Azeribajani features include Iranian place names such as Tabriz and the name Azerbaijan itself.

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